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THE MANAGEMENT OF CEREBRAL GLIOMATA.

By GILBERT PHILLIPS,
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THIS article is concerned with the treatment of cerebral tumours and with the results which may be expected following their surgical exposure and attempts at removal. The term "cerebral" is employed to denote tumours situated in either the cerebrum or the cerebellum as distinct from newgrowths arising from other intracranial structures, such as the meninges, pituitary gland and cranial nerves.

Contemporary opinion of neuro-surgical operations on the brain is harsh, and it is proposed therefore to preface the consideration of results in individual cases by the tabulation of the results of a series of successive craniotomies. It is realized that mortality figures, *per se*, may not be convincing; but it is held in the following series of cases that the results are unequivocal and indicate in a series of successive operations that surgical approach to the brain and subsequent cerebral manipulation, even in the presence of extensive newgrowths, should not be attended by high mortality.

The cases tabulated here (Table I) are the last thirty-five craniotomies performed by the writer in the neuro-surgical department of the Royal Prince Alfred Hospital. Operations on these patients were performed successively and no craniotomies during this period have been omitted. Major neuro-surgical procedures other than craniotomy are not considered here. All minor neuro-surgical procedures on the brain, such as burr-hole explorations and ventriculography, have been excluded. The results in individual cases of this series are to be considered later. The long periods spent in hospital in some cases are usually due to post-operative courses of deep X radiation.

The cause of death in the two cases in this series in which death occurred in hospital cannot be related directly to the operation, since one death (Case VIII) occurred eight weeks after operation, and then from the result of an accident, while the other death (Case XXI) occurred fourteen days after operation as the result of intracranial hæmorrhage.

In Case VIII, after the removal of a left parietal astrocytoma, the patient recovered and was rational and cooperative. The wound had practically healed; but unfortunately she fell out of bed during her sleep and tore the scalp flap open. This resulted in an indolent infection of the wound, which finally terminated in meningitis and death.

In Case XXI an osseous plaque was removed in one piece from the region of the right prefrontal vein which had been damaged by the plaque and had caused attacks of sub-arachnoid hæmorrhage. The patient recovered from the operation and the wound healed. Fourteen days after operation she died suddenly at rest in bed. Permission for autopsy could not be obtained; but the character of her death indicated some vascular catastrophe as the cause.

It is interesting to note that 28 of these 35 operations were performed in the presence of a large space-occupying lesion in the skull associated in each instance with a considerable increase of intracranial pressure; one patient died as the result of late wound infection. This fact alone should substantiate the claim that with adequate management cerebral tumours may be exposed and attempts may be made at their removal with a relatively low surgical mortality rate.

There is one factor which is of fundamental importance in making this possible, namely, operation under local anæsthesia. The value of the level of consciousness as an index of the toleration of the brain to surgical trauma cannot be rated too highly. The capacity of a patient to complain of pain, cold and discomfort, and the opportunity to provide adequate fluid by mouth during prolonged surgical procedures, are constant guardians against cerebral shock. Except in operations on children, general anæsthesia is rarely used now by the writer.

Refinements of technique, however, can offer little of general interest, and the controverted questions of anæsthesia, air studies and operative methods will not be

Table I.

Case Number.	Patient.	Diagnosis.	Type of Craniotomy.	Length of Time after Operation before Discharge from Hospital.	Death (Length of Time after Operation.)
I	I.P.	Frontal glioma.	Right frontal.	14 days.	
II	W.B.	Cerebral gliosis.	Left frontal.	11 days.	
III	E.S.	Trigeminal neuralgia.	Subtemporal.	12 days.	
IV	J.D.	Parietal glioma.	Subtemporal.	7 weeks.	
V	J.D.	Parietal glioma.	Subtemporal.	7 weeks.	
VI	W.H.	Parietal glioma.	Left parietal.	19 days.	
VII	W.J.	Temporal glioma.	Right temporal.	17 days.	
VIII	I.P.	Parietal glioma.	Left parietal.		8 weeks.
IX	L.B.	Temporal glioma.	Left temporal.	16 days.	
X	J.S.	Cerebral gliosis.	Left frontal.	14 days.	
XI	H.R.	Cerebellar glioma.	Suboccipital.	7 weeks.	
XII	H.R.	Cerebellar glioma.	Suboccipital.	6 weeks.	
XIII	R.D.	Pontine glioma.	Suboccipital.	15 days.	
XIV	A.M.	Temporal glioma.	Left temporal.	30 days.	
XV	G.H.	Cerebellar cyst.	Suboccipital.		
XVI	G.H.	Cerebellar cyst.	Second stage: suboccipital.	8 weeks.	
XVII	C.T.	Parietal glioma.	Left parietal.	5 weeks.	
XVIII	K.Q.	Cerebral gliosis.	Left frontal.	6 weeks.	
XIX	A.S.	Cerebellar glioma.	Suboccipital.	9 weeks.	
XX	M.M.	Cerebellar glioma.	Suboccipital.	5 weeks.	
XXI	M.R.	Von Recklinghausen's disease.	Right frontal.		14 days.
XXII	I.E.	Frontal glioma.	Right frontal.		
XXIII	I.E.	Frontal glioma.	Second stage: right frontal.	4½ weeks.	
XXIV	A.M.	Temporal glioma.	Left temporal.	3 weeks.	
XXV	H.P.	Third ventricle cyst.	Right frontal.	3 weeks.	
XXVI	A.T.	Parietal glioma.	Right parietal.	15 days.	
XXVII	G.P.	Meningioma of sphenoidal ridge.	Left frontal.	3½ weeks.	
XXVIII	M.J.	Right frontal scar.	Right frontal.	2 weeks.	
XXIX	R.W.	Glioma of optic chiasm.	Right frontal.	3 weeks.	
XXX	B.H.	Right occipital hydatid cyst.	Right occipital.	4 weeks.	
XXXI	D.B.	Tumour of lateral ventricle.	Left frontal.	11 days.	
XXXII	J.W.	Depressed fracture of the skull.	Left parietal.	13 days.	
XXXIII	W.J.	Tumour of third ventricle.	Right frontal.	15 days.	
XXXIV	R.W.	Pituitary tumour.	Right frontal.	In hospital, well.	
XXXV	M.C.	Parietal glioma.	Right parietal.	4 weeks.	

stated here. One fact must always be realized, namely, that many cerebral tumours, either by their situation, size or histological nature or by the condition of the patient, are inoperable. The surgeon who does not admit this will soon be buried in the débris of his own failures. Certainly, in less than 50% of all cases of intracerebral tumour referred to him can the surgeon hope to offer more than a few years of comfort and activity. An occasional brilliant result does not sanction the indiscriminate use of surgery and merits less attention than the capacity to recognize the impossible coupled with the flexibility and nice discrimination which are essential to solve the separate problems with which each case is hedged about. The present series represents the results in those cases of intracerebral tumour in which it was considered that operation was justified. The series is selective only in so far as other similar patients referred to the author in the same period either died before operation or were transferred elsewhere after operation had been refused.

One further point is of general interest, namely, the duration of these operations. One school of neuro-surgery regards the terms "the quick" and "the dead" as synonymous; the other deplores the dawdling tedium born of exquisite carefulness. Operations on intracranial tumours will probably always be long operations; but it is felt that moderation in the use of time is a by-product of effective working. In Table II the duration of the operations for cerebral tumours in the present series is recorded. The average duration is approximately three and a half hours.

The results in individual cases in this series will now be considered, the cases being grouped either as cerebellar or as cerebral.

Cerebellar Tumours.

Medulloblastoma.

By far the most frequent types of intracerebellar tumours are the medulloblastomata and the astrocytomata. These constitute over 90% of all cerebellar gliomata. Very occasionally an astroblastoma or an ependymoma of the cerebellum may be encountered. Medulloblastomata habitually occur in the mid-line and characteristically arise in remnants of the roof plate of the neural tube. They are therefore usually situated in the cerebellar vermis. They are solid, cellular, vascular growths

Table II.

Patient.	Type of Operation.	Duration. (Hours.)
I.P.	Right frontal craniotomy; needling of tumour.	2
J.D.	Left temporal craniotomy; needling of left temporal lobe tumour.	2½
J.D.	Suboccipital decompression.	1½
W.H.	Left parietal craniotomy; needling of tumour.	2½
W.J.	Right temporal craniotomy; partial excision of right temporal lobe and subtotal removal of tumour.	4
I.P.	Left parietal craniotomy; partial excision of left parietal lobe; removal of tumour.	4
H.R.	Suboccipital craniotomy; subtotal removal of cerebellar tumour.	4
H.R.	Total removal of cerebellar tumour.	3
R.D.	Suboccipital craniotomy; needling of left cerebellar hemisphere.	4
A.M.	Left temporal craniotomy; removal of temporal lobe cyst.	2½
G.H.	Suboccipital craniotomy; evacuation of cerebellar cyst.	2
G.H.	Second stage: total removal of cerebellar cyst.	2½
C.T.	Left parietal craniotomy; partial excision of left parietal lobe; removal of tumour.	3
A.S.	Suboccipital craniotomy; partial removal of tumour.	4
M.M.	Suboccipital craniotomy; partial excision of right cerebellar hemisphere and removal of tumour.	2½
M.R.	Right frontal craniotomy; removal of osteomatous plaque.	2½
I.E.	Right frontal craniotomy; aspiration of frontal lobe cyst.	2
I.E.	Second stage: removal of tumour.	3
A.M.	Total removal of left temporal glioma.	3½
H.P.	Removal of third ventricle cyst.	3½
A.T.	Subtotal removal of right parietal glioma.	3½
G.P.	Removal of left sphenoidal ridge meningioma.	4
R.W.	Exposure of glioma of chiasm.	2
M.J.	Excision of cerebral scar.	2
B.H.	Removal of right occipital cyst.	1½
D.B.	Total removal of papilloma of choroid plexus.	3½
J.W.	Elevation of depressed fracture.	¾
W.J.	Total removal of glioma of third ventricle.	3
R.W.	Subtotal removal of pituitary tumour.	2½
M.C.	Total removal of parietal glioma.	1½

habitually occurring in young children, the average age incidence being ten years. They are highly malignant and cannot be completely removed surgically. After removal they habitually recur within twelve months. They are the most radio-sensitive of all the gliomata of the brain, and if a pre-operative diagnosis of medulloblastoma can be made with fair certainty the proper surgical treatment is to perform a suboccipital removal of all bone overlying the tumour and to close the wound without opening the dura. The patient should then be treated with massive doses of X radiation before an attempt at surgical removal is made. Very often an equally good or even better immediate result may be expected from deep X-ray therapy than from surgery. These tumours characteristically form drop metastases down the spinal cord. For this reason deep X radiation is required along the whole length of the vertebral column as well as to the posterior fossa. Preliminary surgical interference with the growth may accelerate the formation of drop metastases.

The earliest symptom of medulloblastoma of the vermis in children is vomiting. This may be present alone for several months before other symptoms appear. A peculiar feature of these tumours too is that the early vomiting may be periodic, and it is common to find that a gastro-intestinal cause has been ascribed to this symptom and the patient treated accordingly. In many cases the appendix is removed. Early morning headaches appear later and signs of cerebellar disturbance may be quite inconspicuous even many months after the first appearance of the vomiting. It is always a wise plan carefully to examine the fundi of any child who suffers from persistent recurrent attacks of vomiting. Case XIX (A.S.) represents the typical history:

A.S., a female patient, aged seven years, was referred by Dr. Erby. She had suffered from intermittent headache for several months, usually occurring on her awakening in the morning, and from vomiting, usually at or before breakfast, associated with malaise and anorexia. Clumsiness of the right hand had been present for some weeks, and she complained of failing vision of three weeks' duration.

When the child was examined four diopters of papilloedema were present on both sides, with exudate and hæmorrhage; nystagmus was present on left lateral deviation of the eyes. Ataxia and dysmetria of the right upper extremity were noted, and ataxia was revealed in the heel-knee test. Rombergism was present; the child tended to fall backwards and walked on a wide base. The cerebro-spinal fluid was under a pressure of 650 millimetres of water; the protein content was 30 milligrammes per 100 cubic centimetres. A great increase in the convolutional markings, and separation of the sutures, ballooning of the sella and erosion of the posterior clinoid processes was revealed by X-rays. There was a positive response to the Casoni test.

A diagnosis of posterior fossa glioma (probably medulloblastoma of the vermis) was made.

On October 31, 1939, the posterior horn of the left lateral ventricle was entered through a parietal burr hole. The cerebro-spinal fluid was under a pressure of 500 millimetres of water. The protein content of the ventricular fluid was 20 milligrammes per 100 cubic centimetres. Owing to the very high intracranial pressure it was considered inadvisable to perform an immediate suboccipital exploration, and the pressure was gradually reduced to normal through a brain needle, which was then replaced by a Frazier needle sutured to the scalp, and continuous drainage of the cerebro-spinal fluid was permitted for twenty-four hours.

On November 1, 1939, under "Avertin" anæsthesia an operation for suboccipital decompression was performed and the posterior margin of the *foramen magnum* and the arch of the atlas were removed extensively. The dura was not pulsating, and after it was opened a brain needle was passed through the right hemisphere towards the mid-line, resistance being encountered at a depth of four centimetres. A suction biopsy of the tumour was taken and immediate examination disclosed a medulloblastoma. The wound was closed in layers. Extensive deep X radiation was commenced one week later, and after a stormy convalescence due to cerebellar œdema secondary to the deep X-ray therapy the patient was discharged from hospital on January 8, 1940. At that time she was free from headache and vomiting, but still exhibited gross ataxia.

Case XX is less typical, and although the symptoms of headache and vomiting were intractable, the subsequent cerebellar signs indicated that the lesion was on the right side; consequently the tumour was exposed, as it was considered that it might be an astrocytoma.

M.M., aged four years, was referred by Dr. Baden Cooke, of Temora. She had had attacks of early morning headache succeeded by vomiting of twelve months' duration, with several remissions, the longest for two months. Infected tonsils were considered to be the cause and were removed.

The patient exhibited the following signs. She had been inclined to walk to the right for six months. Although right-handed, the child had preferred to use her left hand for three months. Bilateral papilloedema was present, and nystagmus was noted on deviation of the eyes to both sides. Weakness of the lower part of the face on the right side was present. Ataxia and dysdiadokokinesia of the right hand were found. The child walked on a wide base and tended to fall forward and to the right. An X-ray examination of the skull disclosed separation of the sutures and increased convolutional marking.

On March 28, 1940, a suboccipital craniotomy was performed under "Avertin" anæsthesia through a linear mid-line incision. When the dura was opened both cerebellar hemispheres bulged, the right more than the left. A brain needle passed into the right cerebellar hemisphere encountered resistance at a depth of three centimetres. The posterior portion of the right cerebellar hemisphere was excised and a large vascular glioma was exposed and removed by sucker and endothermy. After its removal a large cavity remained which required two ounces of fluid to fill it. Subsequent histological examination of the tumour disclosed that it was a medulloblastoma.

The patient is quite well at present. She has had no further headache or attacks of vomiting and is now able to use her right hand to grasp and hold objects; she is being treated by intensive deep X radiation.

Astrocytoma.

Astrocytomata of the cerebellum are most frequent in children at an average age of thirteen years; but they also occur in adults, and in adults they are the most common type of intracerebellar growth. In children cerebellar astrocytomata may occur either in the vermis or in one hemisphere and they are usually solid tumours. In adults they usually occur in one hemisphere and are commonly cystic. They are not radio-sensitive and do not tend to form drop metastases down the spinal cord. They should be treated surgically and an attempt should be made at radical removal. Frequently this cannot be performed at one operation. The following case (Case XI) is typical:

H.R. was a boy, aged eleven years, referred by Dr. Earnshaw, of Brisbane. In June, 1938, he noticed headache when riding his pony. In August, 1938, he had generalized headache, attacks of projectile vomiting and clumsiness in using the right hand; he also noted a tendency to fall to the right side when walking.

In September, 1938, the patient was operated on by Dr. Lee, of Brisbane, who removed a cerebellar cyst and reported that the tumour was an astrocytoma. He was discharged from hospital, quite well, on October 19, 1938, and was given no deep X-ray treatment. He continued to be well until the middle of February, 1939, when his mother noticed that he often staggered when walking; the operation site was bulging and he had an occasional squint in the right eye. He occasionally vomited. In April, 1939, the headache reappeared, the staggering gait became progressive and he had vomiting attacks lasting for two or three days. The vomiting continued and the boy became very thin and wasted. He was referred to the Royal Prince Alfred Hospital by Dr. Earnshaw and Dr. Lee, and was admitted to the neuro-surgical department on May 15, 1939, and operated on the same day under "Avertin" anæsthesia. The previous wound was reopened and a large vascular tumour was found overlying the whole of the right cerebellar hemisphere and part of the left. The whole tumour was solid. About four ounces of tumour, representing about three-quarters of the total amount, was excised with endothermy. The operation was concluded owing to the considerable blood loss. During the removal the patient was given 800 cubic centimetres of citrated blood intravenously and was talking rationally a few minutes after closure of the wound.

His convalescence was uneventful, and he was sitting up in bed a fortnight later. Three weeks after the operation he was walking about the ward.

Examined histologically the tumour appeared to be an atypical astrocytoma and its character had probably been altered by the previous operation; mitotic figures were seen in histological section. It was decided to give the child an

extensive course of deep X radiation. This was done and he was discharged from hospital, quite well, on July 3, 1939.

He remained well until December, 1939, when he became nauseated and vomited twice, and his mother noticed some swelling under the operation site. He was admitted to the Royal Prince Alfred Hospital on December 20, 1939. On his admission he was able to walk quite well and the operation site was not bulging. A small hard nodule could be felt in the lower right quadrant of the occipito-nuchal region. On January 4, 1940, under "Avertin" anæsthesia the operation wound was reopened; the remainder of the tumour, which had increased considerably in size since the previous operation, was able to be removed in one piece, a huge cavity being left, the base of which was constituted by the emerging cranial nerves and the right vertebral artery passing upwards to join the basilar. The whole of the right cerebellar hemisphere had apparently been invaded and destroyed by the tumour. The wound was closed in layers.

Convalescence was delayed by the appearance of a leak of cerebro-spinal fluid through the middle of the vertical incision four weeks after operation. This was dressed with "Metaphen" and healed completely during the next week. The patient was discharged from hospital six weeks after operation and has since returned to Queensland. His mother wrote recently and reported that the boy was quite well.

Histologically no definite opinion could be given as to the character of the tumour removed at the last operation. It was surprising to find that the tumour could be removed *en bloc* at the last operation. Deep X radiation following the second operation may have been a factor in making this possible. The appearance of cerebro-spinal fistulæ is not uncommon in patients who have had repeated suboccipital operations. Provided that the operation has been successful in restoring a normal intracranial pressure, the consequences of a cerebro-spinal fluid leak are less to be feared. If the patient is nursed in the Fowler position the fistula usually closes in a short time.

The following case of a cerebellar cyst in an adult is atypical, owing to the short history and the complete absence of cerebellar signs.

G.H., a male patient, aged twenty-eight years, was referred by Dr. T. M. Greenaway. He had suffered from loss of energy for two months and had been unable to carry out his duties as a bank officer; he had had drowsiness and hypersomnia for the same period, and early morning headache accompanied by vomiting for six weeks. Bilateral papilloedema was present, and the cerebro-spinal fluid was under a pressure of 350 millimetres of water. The protein content of the fluid was 20 milligrammes per 100 cubic centimetres, and the fluid did not react to the Wassermann test.

In view of the increased intracranial pressure an intracranial tumour was suspected and a ventriculographic examination was made on February 14, 1940. A Frazier needle was left in the ventricle for twenty-four hours to provide continuous drainage of cerebro-spinal fluid. The ventriculograms disclosed bilateral symmetrical internal hydrocephalus, indicating a lesion in the posterior fossa.

It has been noticed by Cairns[1] and others that following ventriculography localizing signs often develop. This happened in this case, and within twelve hours left sixth nerve palsy appeared and was accompanied by diminished reflexes, hypotonia, dysdiadokokinesia and past-pointing in the left upper extremity. A tumour of the left cerebellar hemisphere was diagnosed, and on February 15, 1940, a first-stage operation was performed under local anæsthesia through the mid-line suboccipital approach. After exposure of the left cerebellar hemisphere a brain needle was passed into it and 26 cubic centimetres of bright yellow fluid were removed. The arch of the atlas and the posterior border of the *foramen magnum* were removed and the wound was closed in layers.

On February 19, 1940, under local anæsthesia, the previous incision was reopened and a left-sided cross-bow incision was made, passing to the tip of the mastoid process. The left cerebellar hemisphere was again exposed and the cyst was opened by excision of the overlying cerebellar cortex. The cyst was found to contain recent blood clot. The cyst wall was removed and no naked-eye tumour was seen, although the removal was continued to such a depth that the fourth ventricle was opened and clear cerebro-spinal fluid from it filled the cavity resulting from the removal of the cyst.

The subsequent histological examination of the tissue which had been removed disclosed only recent blood clot and a fibroblastic cyst wall. In view of this it is not unlikely that this tumour was a blood cyst and not a neoplasm, although it may have been a hæmangioblastic cyst with a microscopic mural nodule. The patient is an extremely muscular person, and probably as the result of the considerable retraction of muscle required during two long operations at such short intervals, the wound has healed very slowly. The patient is now well, free from symptoms and has been discharged from hospital.

Cerebral Tumours.

Glioblastoma Multiforme.

Of all intracerebral tumours the *glioblastoma multiforme* is the most common, and most frequently occurs in the fourth and fifth decades of life. These tumours are highly malignant and are not capable of complete surgical removal unless they are situated in either the frontal or occipital lobes and are so placed that they can be removed *en bloc* by frontal or occipital lobectomy. The average survival period after radical surgical treatment is twelve months (Bailey and Cushing[2]). Only five out of 77 patients reported by these authors had a survival period of over three years from the onset of symptoms. These tumours are only very slightly radio-sensitive and characteristically increase their rate of growth following surgical insult. In the author's opinion no case in which a pre-operative diagnosis of glioblastoma can be made with reasonable certainty is suitable for surgical treatment unless it is likely that the tumour may be removed *en bloc* by resection of one whole lobe of the brain. Even then it is questionable whether a glioblastoma should be attacked surgically. Bailey and Cushing (*loco citato*) state:

> They are tumors which usually recur soon after surgical removal, even after extensive removal of the involved area of the brain en bloc.

Two other dangers are associated with these tumours. Spontaneous hæmorrhage into their substance is not uncommon, and cerebral œdema is frequently associated with their removal. Patients have died at an early stage of operation from hæmorrhage into the tumour, and many succumb to œdema a few hours after an apparently successful operation. This type of cerebral tumour is so common, representing almost 40% of all intracerebral gliomata, that the inability to recognize the tumours pre-operatively is the rock on which many neuro-surgical hopes are broken.

The following case (Case VII) is an atypical story; and although the tumour proved subsequently on histological examination to be a glioblastoma, it could not be definitely diagnosed pre-operatively and consequently was regarded as suitable for exploration.

W.J., a male patient, aged sixty-five years, was referred by Dr. G. L. Howe, of North Ryde. He had suffered from persistent right-sided headache for two months, unaccompanied by vomiting. Drooping of the left side of the mouth had been present for an uncertain period, and slight weakness of the left leg had been noticed for about six weeks; there was slight weakness of the lateral rectus muscle on the left side. The fundi were normal. There was some loss of power in the grip of the left hand, and swaying to the left occurred in the Romberg position. Both ankle jerks were absent. There was depreciation of deep sensation in the left extremity. The visual fields were full. The systolic blood pressure was 170 and the diastolic pressure 110 millimetres of mercury. The cerebro-spinal fluid was under a pressure of 120 millimetres of water; its protein content was 70 milligrammes per 100 cubic centimetres and it did not react to the Wassermann test. An X-ray examination of the skull disclosed no evidence of any radio-opaque tumour or of increased intracranial tension. An encephalographic examination disclosed deviation of the ventricular system to the left, and no air could be manipulated into the temporal horn of the right lateral ventricle. Before the encephalographic examination it was considered, in view of the raised blood pressure, that the condition might be due to a vascular disturbance; but the encephalogram proved the presence of a space-occupying lesion in the right middle cranial fossa. In view of the patient's alert mental condition, his normal visual fields, the right-sided headache and the increase in the protein content of the cerebro-spinal fluid, it was considered that the tumour might be a meningioma. On October 9, 1939, under local anæsthesia, a right temporal craniotomy was performed, and when the temporal lobe was exposed the superior temporal gyrus appeared pale and cystic. Through a brain needle passed in this situation two cubic centimetres of straw-coloured fluid were withdrawn. The superior and middle temporal gyri were excised and a vascular tumour

was exposed and partly removed with the sucker. Other portions were removed for examination with rongeurs. An immediate microscopic examination indicated a glioblastoma, and after a wide decompression the wound was closed.

The patient made an uneventful recovery and was given several courses of intensive deep X radiation. He has had no recurrence of headache and was recently shown at a clinical meeting at this hospital.

Astrocytoma.

Astrocytomata comprise approximately 40% of all the cerebral gliomata, and occur with almost equal incidence in the first five decades of life. They are almost equally distributed in the frontal, temporal and parietal lobes and are rare in the occipital lobes. Survival periods of six to ten years may confidently be expected after adequate surgical treatment, and cases have been reported in which the patient was alive as long as twenty-six years after surgical removal of the tumour.[3] Unlike the glioblastomata, these tumours characteristically produce localizing signs before any considerable disturbance of intracranial pressure takes place, a fact which makes attempts at their surgical removal considerably less hazardous than removal of the more rapidly growing gliomata.

Over 30% of the cerebral astrocytomata are partly cystic, and if intracranial pressure is increased by their presence, it is wise to employ a two-stage operation; the bone flap should be reflected and the cyst aspirated through the unopened dura at the first operation, and the dura should be opened and the solid tumour removed some days or weeks later, when the patient's general condition will have improved as the result of reduction of the bulk of the tumour by aspiration. The following cases illustrate the results which may be expected from surgical treatment of cerebral astrocytomata.

Case XVII is typical, as localizing symptoms appeared early in the history.

C.T., a male patient, aged thirty-two years, was referred by Dr. E. H. Stokes. He had had a giddy turn accompanied by headache, which was relieved by vomiting, four years earlier, while at work. During the next two years he had a number of these attacks, which became more frequent. Eighteen months ago, in one attack he had numbness in the right leg; this numbness appeared in all subsequent attacks, first in the right leg only, and then in the right arm in addition. He had had loss of power in the extremities on the right side, first in the leg, then in the arm, of about twelve months' duration. Three months ago his condition became worse and he had persistent bilateral frontal headache, accompanied by vomiting. He had had transient diplopia six weeks earlier.

Three diopters of papilloedema were present on both sides, and there was weakness of the lower part of the face on the right side. Postural falling of the outstretched hands was present on the right side and there was loss of power in the extremities on the right side. The abdominal reflexes were diminished on the right side and the tendon reflexes were increased in the right extremities. Astereognosis was present in the right hand. There was a loss of passive position and of movement sense in the right hand and foot. The cerebro-spinal fluid was under a pressure of 300 millimetres of water; the protein content was 20 milligrammes per 100 cubic centimetres, and the fluid did not react to the Wassermann test. An X-ray examination of the skull revealed a large area of calcification in the left parietal region.

On January 18, 1940, under local anæsthesia, a left parietal flap was reflected. The dura was extremely tense and the intracranial pressure was lowered by lumbar puncture; a brain needle was then passed into the posterior portion of the parietal lobe and 23 cubic centimetres of yellow fluid were aspirated. After excision of the overlying cortex a large partly calcified tumour was removed by diathermy loop and suction. The tumour was invading the left side of the falx near the longitudinal sinus, and this area was treated with an endothermy ball electrode. The dura was closed and the flap was replaced. The patient was conscious throughout the operation, drinking and talking rationally. During convalescence cerebral œdema appeared and was treated by repeated lumbar puncture.

The patient was free from symptoms and walking about the ward three and a half weeks after the operation, and was discharged from hospital five weeks after operation. He has since been shown at a clinical meeting at the hospital and has now returned to his work in the country.

The unfortunate final result in the following case (Case VIII) has been referred to previously; it was due to an accidentally infected wound and subsequent meningitis caused by the patient's falling out of bed some weeks after operation and tearing the wound open.

I.P., a female patient, aged fifty-two years, was referred by Dr. A. Ping, of Bondi. She had suffered from bilateral vertical headache for nine months, from failing vision for four months, from loss of memory and attacks of crying for three months, and from pain in the left arm and hand for two months.

Four diopters of papilloedema were present on both sides. Facial weakness was present in the lower part of the left side, and left homonymous hemianopia was noted. The tendon reflexes were increased in both extremities on the left side. There was complete loss of power in the left foot and left hand. The left plantar response was extensor in type. The cerebro-spinal fluid was under a pressure of 300 millimetres of water; the protein content was 80 milligrammes per 100 cubic centimetres.

On October 23, 1939, under local anæsthesia, a right parieto-occipital flap was reflected. The dura was under considerable tension, and a brain needle passed into the superior parietal gyrus encountered firm resistance at a depth of two centimetres; no cystic fluid could be obtained. Lumbar puncture was performed, and after the removal of one ounce of cerebro-spinal fluid the dura commenced to pulsate. The dura was then opened widely and the parietal cortex overlying the tumour was excised. Part of the tumour was easily sucked away with a glass sucker; about one-third of it, however, was firmer and was removed with rongeurs and the endothermy loop. Bleeding was very free and was controlled by peroxide of hydrogen packs. After a wide decompression the bone flap was wired into position and the scalp flap was closed. The patient was conscious and speaking rationally during the operation. At the conclusion of the operation she was given 600 cubic centimetres of citrated blood by intravenous injection. During the succeeding week cerebral œdema developed and was treated by removal of about 17 cubic centimetres of cerebro-spinal fluid by lumbar puncture on two occasions.

Seventeen days after operation the patient fell out of bed; later that night she had a generalized convulsion, in which the head and the eyes were turned to the left, and a second similar convulsion occurred next morning. The wound was inspected and was found to have been torn open along its posterior third, and brain tissue was herniated through the decompression. In the succeeding week *hernia cerebri* developed and was excised by the endothermy loop four and a half weeks after operation. In spite of repeated lumbar punctures the hernia reappeared during the following week and was again excised six and a half weeks after operation. An indolent infection of the wound then appeared and the patient died from suppurative meningitis eight weeks after operation. At autopsy the right occipital lobe was found to be extremely necrotic, but no definite tumour tissue could be found.

The following case (Case XIV) illustrates an interesting difficulty in diagnosis which is not infrequently encountered. A short history of headache and vomiting are the prominent symptoms and may often be related to some definite head injury received shortly before their onset and may consequently suggest the presence of chronic subdural hæmatoma.

A.M. was a male patient, aged forty years, who was referred by Dr. John McGeorge, of Sydney. The patient had hit his head on a boat three months earlier. He suffered from violent headaches for the next three or four days, accompanied by vomiting, and these had persisted intermittently. He had had almost continuous headache for three weeks, bilateral and frontal and occipital in situation. Early morning vomiting had been present for three weeks. He had had blurred vision in the right eye for three weeks.

On examination it was found that the patient had had impairment of vision for one month and slurred speech for three weeks. Lumbar puncture was performed and the cerebro-spinal fluid was found to be under a pressure of 250 millimetres of water; the protein content was 30 milligrammes per 100 cubic centimetres, and the fluid did not react to the Wassermann test. An X-ray examination of the skull disclosed no abnormality. Right homonymous hemianopia was present. A small-volume encephalogram (five cubic centimetres of air) showed the third ventricle and the *septum pellucidum* to be deviated to the right; the right lateral ventricle was larger than normal.

On February 29, 1940, under local anæsthesia, a left temporal flap was reflected. The dura was under considerable tension, and through a brain needle passed through a small dural opening into the left middle temporal gyrus

fifteen cubic centimetres of clear yellow fluid were aspirated. The dura commenced to pulsate and was opened widely. The temporal lobe cortex overlying the cyst was excised and the cyst wall was removed. No definite tumour tissue was seen by the naked eye.

The bone and scalp flaps were replaced. Histological examination of the cyst wall and the tumour which had been removed disclosed no evidence of newgrowth. The patient's convalescence was uneventful and he was discharged from hospital four weeks after operation.

He remained quite well until two weeks ago, when he reported back to the neuro-surgical unit, complaining that the left subtemporal decompression wound was bulging. The wound was reopened under local anæsthesia and it was found that the whole of the cavity which had previously been occupied by the cyst contained a solid firm glioma. Apparently the cyst had been lying superficially to the deeply placed solid tumour, and the removal of the cyst had allowed the latter to migrate to the surface. The whole of the solid tumour was removed by endothermy, and after the removal the whole of the floor of the middle cranial fossa and the tentorial attachment to the crest of the petrous bone were exposed. The patient's convalescence after the second operation has been uneventful. His wound is healed and he is ready for discharge from hospital.

Oligodendrogliomata.

Oligodendrogliomata are a small group of tumours comprising about 2% of all cerebral gliomata; they are included in spite of their rarity because the prognosis after their removal is good, and cases have been described in which the patient has survived for twenty years after operation. These are solid tumours which occur almost exclusively in the cerebral hemispheres and show a strong tendency towards calcification. Like the astrocytomata, they usually produce localizing signs before high intracranial pressure develops. The present writer has already described in this journal a case of one of these rare tumours in which a successful operation was carried out at Lewisham Hospital some years ago.[4] Sometimes the situation of the tumour, although it is quite accessible, makes it inadvisable to attempt its removal, owing to the proximity of vital cerebral mechanisms. The following case (Case VI) illustrates this point. The tumour occupied the greater portion of the left parietal lobe of a right-handed male patient, and its removal would have been succeeded by permanent aphasia and possible hemiplegia. Adequate decompression succeeded by deep X radiation has produced the most satisfactory result that could be expected.

W.H., a male patient, aged thirty-six years, was referred by Dr. L. Hughes. The patient began to suffer from weakness in the right leg seven months earlier. This weakness had persisted and he had limped with the right foot for some months; he often stubbed his toe when walking upstairs. He had had occasional shooting pain in the right shin for one month. The right foot had been colder than the left for one month. The patient noticed that his right arm had become weak and clumsy and that he had difficulty in picking up and grasping objects with the right hand for four months. Right frontal headache had begun three months earlier; it was aggravated by coughing and was accompanied on one occasion by vomiting; two weeks earlier the patient noticed that his eyesight was blurred. He had had loss of concentration and difficulty in calculating for three weeks.

On examination both optic disks were blurred; nystagmus was present on right lateral deviation. Paresis was noted on the right lower part of the face. There was loss of power of the extremities of the right side. Ataxia was revealed in the right finger-nose and heel-knee tests. The right plantar response was extensor in type. There was a loss of passive position and movement sense in the right thumb and right great toe. The cerebro-spinal fluid was under a pressure of 350 millimetres of water; there was no increase in the protein content. The fluid did not react to the Wassermann test. Right homonymous hemianopia was present. An X-ray examination of the skull revealed calcification in the left parietal region.

On November 2, 1939, a large left parietal flap was reflected under local anæsthesia; the dura was under considerable tension and did not pulsate until one ounce of the cerebro-spinal fluid had been removed by lumbar puncture. The dura was then opened widely and the parietal gyri were observed to be pale and flat. When a needle was introduced into the parietal lobe in several places a gritty resistance was detected all over the lobe at a depth of four centimetres. As it was obviously impossible to remove this tumour without a risk of permanent aphasia and hemiplegia, the bone flap was removed and the pericranial and scalp flaps were resutured in two layers.

Although no attempt was made to examine this tumour histologically, the character of the calcification suggests that it was an oligodendroglioma. The patient was conscious and speaking rationally during the operation. His convalescence was uneventful and he was discharged from hospital, free from symptoms, three weeks after operation. He has been seen at the out-patient department and has been recently shown at a clinical meeting at this hospital. He remains well and is able to walk about normally, but has considerable paresis in the right upper extremity.

Case XXII is unusual, since the localizing signs were quite inconspicuous in spite of the very large solid and cystic oligodendroglioma in the right frontal region.

D.E., a female patient, aged thirty-five years, was referred by Dr. Cotter Harvey. She had suffered from slight headache for three years; it had become much more severe in the past six weeks. Lethargy and loss of energy had been present for two or three months, and blurring of vision had been present for one week.

The patient had been subject to attacks of unconsciousness for four months and for two months to "turns" in which she heard people talking. She had had attacks of early morning vomiting, projectile in character, for the last five weeks. Early papilloedema was noted on both sides. The cerebro-spinal fluid was under a pressure of 250 millimetres of water; the protein content was 30 milligrammes per 100 cubic centimetres. The fluid did not react to the Wassermann test. Plain X-ray films of the skull disclosed no abnormality.

In view of the high intracranial pressure, an intracranial tumour was suspected, and on April 8, 1940, a small-volume encephalogram was made, 10 cubic centimetres of air being introduced slowly; the encephalograms revealed deviation of the ventricular system to the left, and no air could be manipulated to the right frontal horn. That night the patient's condition rapidly deteriorated, and the next morning a right frontal flap was turned down and a brain needle was inserted through a small dural incision into the right frontal lobe. A cyst was encountered and about 20 cubic centimetres of clear yellow fluid were aspirated. The patient's condition immediately improved, and she was conscious and rational at the conclusion of the operation.

On April 10, 1940, under local anæsthesia, the right frontal flap was again reflected, and when the dura was opened the right frontal lobe bulged out into the operation field. Portion of the tumour was presenting in the middle frontal gyrus. The whole of the lateral aspect of the right frontal lobe was excised, and a solid and cystic glioma was exposed, which was easily removed with a sucker; after its removal the whole of the anterior cranial fossa on the right side was empty except for a small portion of the right frontal lobe in close approximation to the falx. The patient was conscious and rational at the conclusion of the operation, and during the actual excision of the right frontal lobe she gave the theatre sister instructions as to where she would find lemons in her locker to make her a fresh lemon drink. Her convalescence has been complicated by mild rises of intracranial pressure secondary to cerebral œdema, but at the present time she is free from symptoms, exhibits no abnormal mental changes, and has been discharged from hospital.

Conclusion.

Irrespective of the skill of the surgeon, operations for cerebral gliomata will frequently be succeeded by a fatality while these tumours are lumped together as a single group and submitted to indiscriminate surgery. Particularly is this so since nearly 40% are glioblastomata; almost all of these patients die within a few months of operation.

A major responsibility for the surgeon is to equip himself with full information of the frequency of incidence, location statistics and full life history of all the cerebral gliomata. The capacity for making the preoperative histological diagnosis of the cerebral gliomata is almost the *sine qua non* of continued success. Refer to Bailey and Cushing's statement made sixteen years ago:

No less important is a clear understanding of the life history of the lesions treated, for on this depends more than on anything else the nature of the procedure appropriate to the particular kind of tumor which happens to be disclosed. What is more, with an increase of such knowledge put in

Table III.
Gliomata of the Brain.

Cell Type.	Frequency of Incidence.	Usual Situation.	Average Age Incidence.	Average Post-Operation Survival Period.	Radio-sensitivity.
	%				
Glioblastoma	40	Cerebrum.	40 to 60 years.	12 months.	Very slight.
Astrocytoma	40	Cerebrum and cerebellum.	Cerebrum, 30 years. Cerebellum, 13 years.	6 to 10 years.	Nil.
Medulloblastoma	12	Cerebellum.	10 years.	2 to 4 years.	Considerable.
Oligodendroglioma	2	Cerebrum.	30 years.	Over 6 years.	Nil.
Ependymoma	2	Cerebrum and cerebellum.	Variable.	6 to 10 years.	Nil.
Rare types	4	—	—	—	—

application, the nature of the tumor will be actually foretold, before it is exposed at operation, in a constantly increasing percentage of cases.

The classification of gliomata of the brain in Table III is only approximate, but is a useful and sufficiently accurate summary of the facts.

Summary.

Thirty-five successive intracranial operations are reported. Twenty-nine of these were performed for intracranial tumours, of which 22 were gliomata of the brain.

In ten of the cases of cerebral glioma the whole tumour was removed, and the greater part of the tumour was removed in another eight cases. In four cases, for various reasons, no attempt was made to remove the tumours, which after exposure were treated by deep X radiation.

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THE USE OF HISTAMINE IN THE TREATMENT OF NEURO-VASCULAR HEADACHE.

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The mechanism underlying intracranial pain is a problem that has occupied the minds of many investigators during the past few years. More recently the works of Penfield, Fay, Northfield and others have added considerably to our knowledge of the sensitivity of the various structures within the cranial cavity. By electrical stimulation, traction and pressure, with the patient under local anæsthesia, these observers have found that the sensation of pain can be produced at certain points, such as the dural sinuses, the middle meningeal artery and its larger branches *et cetera*. This knowledge has been of great assistance in our understanding of the mechanism of pain accompanying intracranial expanding lesions and variations in the intracranial pressure.

In contrast to the pain produced by mechanical traction or pressure, there is another type, in which are included a variety of headache syndromes, of which migraine is probably the best known. These syndromes have been included under the heading of "neuro-vascular headache". The mechanism underlying this type of pain is still rather obscure, but it is undoubtedly due to a periodic and transitory involvement of the autonomic nerves accompanying certain intracranial and extracranial blood vessels and sinuses.

[1] Aided by a grant from the National Health and Medical Research Council.

In migraine and in many of the other syndromes of neuro-vascular headache the patients frequently complain of certain constant aura. These may take the form of visual phenomena, such as scotoma, hemianopia *et cetera*, or of various auditory, motor or sensory disturbances. These aura are usually rapid in their onset, and it is generally acknowledged that they result from a transitory vasoconstriction of the arteries of supply to the specific part of the brain.

The mechanism underlying the production of the actual pain is not quite so apparent. Halloran suggested that the headache was due to a swelling of the pituitary gland causing compression of the cavernous sinus, which resulted in generalized intracranial congestion. Christiansen believed that the aura was due to disturbances of vessels on or in the brain, while the pain and probably the nausea and vomiting resulted from disturbances of the dural vessels. Riley stated that the pain resulted from a contraction of the arteries and consequent pinching of the sensory nerves in the vessel walls.

The general opinion at the present time is that the pain is due to secondary vasodilatation. Possibly the mechanism is similar to that described by Pickering in reference to the headache produced by the intravenous injection of histamine. He noted that this pain was not prevented by cutting off the blood supply to the scalp during the injection, with the aid of an Esmarch bandage around the head. From this he concluded that the pain must be intracranial in origin. Furthermore, he found that in cases in which one trigeminal nerve had been severed, the pain occurred only on the contralateral side. This indicated that the pain was produced from a point somewhere along the course of the trigeminal nerve or its branches, or from some structure supplied by that nerve.

In these experiments Pickering found that about fifteen seconds after the injection there occurred flushing of the face, a fall in the systemic blood pressure and an elevation of the cerebro-spinal fluid pressure due to vasodilatation. The pain began about one minute after the injection was completed and lasted for about eight minutes. When the histamine was injected slowly the onset of pain was delayed until the injection had been completed; also, when a second injection was given during the period of headache, the pain stopped immediately and did not recur until the second injection was completed. Pickering concluded from these findings that histamine acted primarily on the smaller intracranial vessels producing vasodilatation, thus causing a fall in the arterial blood pressure and a rise in the cerebro-spinal fluid pressure. The larger arteries, though probably relaxed, were prevented from being dilated by the lowered blood pressure and elevated cerebro-spinal fluid pressure. In the second stage when the headache appeared, Pickering stated that, as the dilatation of the smaller vessels subsided, the pressure of the blood and cerebro-spinal fluid returned to normal. The larger vessels then became dilated and the resulting stretching of their walls caused the pain. Finally, when the larger vessels became relaxed the pain was relieved.

In this communication the author wishes to consider the neuro-vascular type of headache and its response to repeated small subcutaneous injections of histamine. This method of treatment has been carried out on five patients at the Lewisham neuro-surgical clinic. One of these obtained partial relief only, while the remaining four patients were completely relieved of all symptoms. For

the sake of brevity the routine method adopted in the administration of the histamine will be described first, and then each case will be discussed in detail. The method of administration, except for a few minor modifications, corresponded to the routine described by Horton, Maclean and Craig.

The Preliminary Intradermal Histamine Test.

In each case of headache, after the possibility of an intracranial pathological lesion had been excluded, the following test was carried out:

A clear area of the forearm was sterilized and 0·075 milligramme (about one minim) of histamine[1] was injected intradermally; this was just sufficient to raise a wheal one to two millimetres in diameter. The reaction was observed over the next five to fifteen minutes. A "positive" reaction consisted of an increase in the size of the wheal, which became irregular in outline, and the production of a large erythematous flare around the wheal. In those cases in which the reaction was "negative" the wheal increased slightly in size, but there was little or no surrounding flare.

Treatment.

In cases in which the reaction was "positive" the patients were given a series of graduated doses of histamine in the following manner:

The solution used for injection consisted of one milligramme of histamine dissolved in ten cubic centimetres of normal saline solution, constituting a 0·01% solution. On the first and second days 0·05 milligramme of histamine (0·5 cubic centimetre of the solution) was injected subcutaneously twice a day. On the third and fourth days 0·075 milligramme (0·75 cubic centimetre of the solution) was injected twice a day. Thereafter, up to the end of the third week, subcutaneous injections of 0·1 milligramme (one cubic centimetre of the solution) were given twice a day. When this course was finished each patient was given one injection of 0·1 milligramme of histamine once a week. If the patient remained free from symptoms during the next two or three months, an attempt was made to decrease the dose by spacing the injections out to one in two weeks and later to one in three weeks and so on. This was done with the object of eventually discontinuing the injections altogether. If the symptoms recurred after the dose was diminished, the injections were again increased to one per week.

Reports of Cases.

Case I.—G.H., a female patient, aged twenty-four years, complained of headache extending over the past two years. There was nothing in her past history to account for the onset of the condition. The pain had increased in frequency and severity until it had become almost constant. It was situated in the left temporo-parietal region, beginning about 10 a.m. and lasting throughout the day.

On examination there was pronounced tenderness in the left temporal region, particularly over the left superficial temporal artery. There was also some hyperæsthesia of the scalp over the left parietal region. Apart from these two findings no abnormality was discovered on systemic or neurological examination to account for the condition.

At the time of the patient's admission to the clinic the pain was almost constant and it waxed and waned like a toothache. At times it was extremely severe and like a knife thrust. There was constant tenderness over the area in which the pain occurred, and this was more pronounced during the acute exacerbations. If the patient pressed on the left superficial temporal artery she obtained temporary relief from the pain. The upper part of the left side of the face became flushed. Otherwise there were no accompanying vasomotor phenomena. The intradermal histamine test produced a "positive" reaction.

The routine series of histamine injections was given over a period of three weeks. At the end of this time some relief was experienced, in that the acute attacks were less frequent and less severe; but the constant dull pain remained unaltered. This was not regarded as a satisfactory result, so it was decided to attack the superficial temporal artery itself. About five cubic centimetres of a 1% solution of "Novocain" were injected around the vessel, with immediate and complete relief from pain and tenderness.

The future treatment of this patient will consist of the ligation and severance of the left superficial temporal artery.

[1] As such a small amount of histamine is used, an economical method is to empty a one cubic centimetre phial into a sterile bottle with a thin rubber stopper. The top of this can be sterilized with iodine or "Metaphen" and the needle passed through the rubber top each time.

Case II.—J.H., a female patient, aged forty-one years, complained of bouts of severe headache since an attack of measles seven months before her admission to the clinic. The headache was usually brought on by fatigue, by bending down, by sudden movement and by straining. It came on at any time of the day and was apt to occur several times a day if she was not careful of her actions. During the past few weeks the attacks had become much more severe. No abnormality was found on systemic or neurological examination.

The headache syndrome was of the following type. The pain was generalized throughout the vertex and frontal regions. As stated above, the attacks were brought on by fatigue, by bending down, by sudden movement and by straining. The pain was severe and throbbing in character, and at times the patient felt as if her head would burst. Each attack lasted only one minute or so and passed off as suddenly as it came on.

The patient had an attack while she was being examined at the clinic. There was no flushing of the face, nasal obstruction, lachrymation or other vasomotor disturbance. The only positive sign was hyperæsthesia of the scalp in its anterior aspect. Pressure on the superficial and common carotid arteries gave no relief from the pain. The attack was too short for the effect of adrenaline to be tried. The intradermal histamine test produced a "positive" reaction.

The routine series of histamine injections was given twice a day for three weeks and then once a week. During the five weeks following the commencement of the injections the patient's condition gradually improved. She slept well, her appetite was much better and she was able to perform her daily tasks in a normal manner. She had occasional attacks, but these were very mild and lasted only a few seconds. At the end of the sixth week she stated that she had been completely free from headache during the previous week. At this time she left Sydney for another city, so she was advised to continue the weekly injections there, under the supervision of the matron of the local hospital.

Case III.—K.L., a female patient, aged forty-six years, stated that she had suffered from attacks of severe pain in the right side of the face during the past two years. There was no apparent cause for the initial onset of these attacks, nor for each individual bout of pain. They were worse during menstruation, but were not confined to that period. In the early stages the pain was situated in a small area below the right eye, but it had gradually spread until the whole face was involved with each attack. Worry and fatigue were the main ætiological factors, but physical agents, such as washing her face, heat or cold, did not precipitate an attack. The only abnormal finding on systemic and neurological examination was an elevated blood pressure (systolic 210, diastolic 110 millimetres of mercury).

During the past two years these attacks of pain had come on two or three times a week, occurring at any time of the day. The patient first noticed a sensation of cold in her hands and feet. A few seconds later she experienced an acute pain in the right side of her face, accompanied by a burning sensation in that region. The vision of her right eye became blurred so that she could only distinguish between light and darkness. The pain lasted intermittently for several hours and then subsided, leaving a dull ache, which during the past few months had been a constant symptom.

Fortunately she had an attack when she attended the clinic. The right side of her face was flushed and slightly swollen in comparison with the left side. There was considerable lachrymation in the right eye and puffiness of the suborbital soft tissues. Temporary relief was obtained by the exertion of pressure over the right superficial temporal artery and the right common carotid artery. One-third of a cubic centimetre of adrenaline was injected subcutaneously, and complete relief from all pain was obtained in a little more than one minute. The intradermal histamine test was carried out at the patient's next visit, and she proved to be extremely sensitive; 0·075 milligramme of histamine produced flushing of the right side of the face and a headache which, she stated, was identical with her usual pain. This was relieved in a very short time by the subcutaneous injection of one-third of a cubic centimetre of adrenaline.

Because of the patient's unusual sensitivity to histamine the dose was increased much more slowly than in the other cases; 0·05 milligramme was injected twice a day for the first week, 0·075 milligramme during the second week, and 0·1 milligramme during the third week. Thereafter 0·1 milligramme was injected once a week. During this time the headaches became less frequent and less severe. By the end of the fourth week she was almost free from symptoms.

After three months the injections were decreased to one in two weeks. During the next three months she had only

one attack, so the injections were further reduced to one in three weeks, which brings her case to the time of writing.

There has been an immense improvement in this patient's general condition. Whereas on her admission to the clinic she appeared tired, listless and careworn, she is now bright, alert and smiling, and she can go about her daily duties without the fear of a headache. She has had only one attack during the past seven months.

Case IV.—R.J., a female patient, aged eleven years, complained of attacks of severe bifrontal headache preceded by central blindness, occurring periodically during the past eight months. There was nothing in the way of a previous illness or trauma to account for the onset of the attacks. They occurred once every two or three weeks and were constant in their pattern. They came on at any time of the day and there was no apparent predisposing cause for each attack. Her father, who later attended the clinic, complained of a similar condition over the past thirty-nine years. Two paternal aunts suffered from severe headache, but the pattern was not known. No abnormality was found on systemic or neurological examination.

The headache syndrome was as follows. During the course of her daily routine the patient would suddenly become blind. She stated that the blindness consisted of a loss of vision for the object at which she was directly looking, but that she was able to make out surrounding objects. For example, if her gaze were directed at a person's face she would not be able to see the face or body, but she could make out the person's feet and some objects in the room. The visual defect would persist for about ten minutes and would then disappear rapidly. In her own words, "the blindness would sometimes disappear to the right and sometimes to the left". On more careful questioning it became apparent that the bilateral central scotoma would disappear by moving from the central field of vision to the peripheral field in a homonymous manner. This occurred either to the right or to the left.

As full vision returned, a severe bilateral frontal headache developed, accompanied by pronounced flushing of the face. When these attacks began there were some accompanying nausea and vomiting, but this had not occurred during the past few months. The pain usually lasted half an hour or so and then passed off, leaving the patient feeling perfectly well. Various forms of medication had been tried without any appreciable effect on the pain.

The intradermal histamine test produced a "positive" reaction. The usual series of injections was given, and then one injection of 0·1 milligramme per week. During the next six weeks the patient had several attacks of headache, but no visual phenomena. In the following three months she was completely free from all symptoms. The injections were then decreased to one in two weeks. After this reduction she had one severe attack, so the weekly injections were resumed. She again became free from symptoms and no attacks occurred during the next two months.

Case V.—F.J., a male patient, aged forty-nine years, had suffered from attacks of severe headache for thirty-nine years. Beginning at about the age of ten years, these attacks occurred once every one or two weeks. During the past few years they had become more frequent but less severe. There was no apparent cause for the initial onset of the condition nor for each individual attack, which was apt to occur at any time of the day. The patient's daughter (Case IV) complained of a similar condition. Two sisters suffered from severe headache, but the patient did not know the pattern these attacks assumed. Systemic and neurological examination revealed no abnormality except a slightly elevated blood pressure (140 millimetres of mercury systolic, 90 diastolic).

From two to eight hours before each attack the patient noticed an itchy sensation in his scalp and his nasal passages became obstructed. With dramatic suddenness bilateral loss of vision occurred. As in the case of his daughter, he was unable to see the object at which his gaze was directed, but he could distinguish objects at the periphery of his field of vision. The visual defect lasted for forty-five to sixty minutes and then disappeared in exactly the same manner as that described by his daughter. When the scotoma had disappeared, a severe bifrontal headache came on and lasted for four to five hours. Accompanying the pain was considerable flushing of the face. In the earlier stages some nausea and vomiting followed the headache, but this had not occurred during the past few years. The patient had tried several types of medication without any relief.

The intradermal histamine test produced a strongly "positive" reaction. The routine series of histamine injections was given, ending in one injection of 0·1 milligramme per week. During the eight weeks after the treatment had been started the attacks gradually became less frequent and less severe. The visual disturbances disappeared first, and finally the pain failed to appear. During the third month the patient was free from all symptoms. The injections were then decreased to one in two weeks. After this reduction he had three attacks, which were similar to his original attacks but less severe. The injections were again increased to one per week and he was free from all symptoms during the next four months.

Discussion and Conclusions.

Head pain, in one form or another, is a complaint that practically every living person has experienced at some time during his existence. In recent years the works of certain investigators have done much towards clearing up some of the mysteries of the various underlying mechanisms. In some instances a definite pathological lesion can be found to account for the pain; but in the vast majority of cases the usual methods of investigation fail to reveal any systemic or neurological abnormality.

Among these cases of unexplained ætiology is a definite and large group containing a variety of syndromes to which the term "neuro-vascular headache" has been applied. This term has been used because there is fairly conclusive proof that the aura and pain are due to a disturbance of the neuro-vascular mechanism controlling certain intracranial and extracranial blood vessels. The primary cause of this disturbance is still a matter for speculation. Of the various patterns in this group the syndrome of migraine is perhaps the best known. There are, however, several other patterns which have a neuro-vascular mechanism, and some of these are equally as common as the classical migraine.

In this report five cases have been presented, which include three distinct patterns, namely, Cases I and II, Case III, and Cases IV and V. In these cases the diagnosis of neuro-vascular headache was made on the following points:

Case I:

- (a) Tenderness over the ipsilateral superficial temporal artery.
- (b) Relief from pain by pressure on this artery and by the injection of 1% "Novocain" around the vessel.
- (c) A "positive" response to the intradermal histamine test.

Case II:

- A "positive" reaction to the intradermal histamine test—the only positive sign of a neuro-vascular mechanism.

Case III:

- (a) A sensation of cold in the hands and feet preceding each attack.
- (b) The presence of flushing of the face, lachrymation and blurring of vision on the side of the pain.
- (c) Relief from pain by pressure on the ipsilateral superficial temporal and common carotid arteries and by the injection of adrenaline.
- (d) A strongly "positive" reaction to the intradermal histamine test.

Cases IV and V:

- (a) The suddenness with which the bilateral central scotoma appeared and the homonymous manner in which it disappeared; these suggested a simultaneous vasoconstriction in branches of both posterior cerebral arteries.
- (b) Blocking of the nasal passages (Case V).
- (c) Flushing of the face (Case V).
- (d) A "positive" reaction to the intradermal histamine test.

When the diagnosis was made and all possibility of an intracranial expanding lesion was excluded, each patient was given a graduated course of histamine injections. In the first case there was only partial relief, while in the remaining four cases there was complete relief from attacks of pain and accompanying phenomena. It is too early yet to state definitely the simplest and most effective manner in which the histamine should be given during the course of treatment and during the ensuing months. In the cases presented in this paper an attempt has been made to reduce the number of injections as time went on. This reduction has been controlled by the patient's condition. Also it is not possible to say yet whether the injections can eventually be discontinued or whether they

must be given throughout the patient's life-time. This point has been explained to them and each patient has stated that he or she would much prefer having weekly injections for the rest of his or her life so long as freedom from headache was achieved.

In conclusion, I wish to emphasize the point that the use of histamine must not be regarded as a cure-all for every type of headache. Each case must be thoroughly investigated by a careful history and examination, by X-ray examination of the skull, by estimation of the pressure, cytology and chemistry of the cerebro-spinal fluid, by estimation of the blood pressure, and by ventricular visualization if necessary. Only when all possibility of a pathological lesion has been excluded should a neuro-vascular mechanism be considered. At this stage an intradermal histamine test should be carried out, and if the result is positive the patient should be given a graduated course of histamine injections. If there is no sign of improvement during the three weeks over which the injections are given, there is little use in persisting with this treatment. In such cases it is wiser to plan another method of attack.

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Reports of Cases.

A FATAL CASE OF CLASSICAL WEIL'S DISEASE (LEPTOSPIROSIS ICTEROHÆMORRHAGICA) IN MELBOURNE.

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Leptospirosis in Australia.

Although for some years prior to 1933 leptospirosis was considered a possible explanation of some of the undiagnosed fevers occurring in Queensland, it was not until that year that, following an exceedingly heavy rainfall and a large increase in the rat population in the Ingham district, a disease appeared in epidemic form among workers in the canefields and was diagnosed clinically as leptospirosis by Dr. G. C. Morrissey and Dr. T. Leckie. A report[1] of the features of this epidemic was published in this journal.

Similar epidemics occurred in the same locality in 1934, and Cotter and Sawers[2] during their investigations isolated leptospiræ from patients and rats in the district. As type strains and their antisera were not available in Australia at that time, further identification of the leptospiræ could not be undertaken.

In 1936 a case of leptospirosis simulating the seven-day fever of Japan occurred at Pomona, 86 miles north of Brisbane, and the clinical aspects and laboratory investigations were reported by Clayton and Derrick.[3] The isolated strain was serologically distinct from those isolated in northern Queensland, and was less virulent for guinea-pigs. In the same year Lumley,[4] of the Commonwealth Health Laboratory, Townsville, undertook a serological survey of isolated strains of leptospiræ and specimens of serum from patients in northern Queensland, comparing them with cultures which had been obtained from overseas, with the Pomona strain, and with one isolated from a Brisbane rat. The strains fell into two groups, which have been named *Leptospira australis A* and *Leptospira australis B*. The former is a distinct type; the latter is distantly related to *Leptospira icterohæmorrhagiæ* and to *Leptospira canicola*. The Pomona strain is distinct from both.

The serum of patients also corresponded to these two groups of leptospiræ. Johnson, Brown and Derrick,[5] in 1937, reported the first cases of classical Weil's disease due to *Leptospira icterohæmorrhagiæ* in Australia. Two of the three patients were sewer workers in Brisbane. The third patient had come from northern Queensland a few days prior to the onset of his illness.

Clinical Record.

J.C., a male patient, aged forty-nine years, had been employed for many years as an oyster opener in the Melbourne fish market. He had not been absent from the State recently, nor had he been in contact with sick persons from any other State. He was admitted to the Royal Melbourne Hospital on October 13, 1938, at 6.35 a.m. He had been under the care of Dr. Alan Murray for about one week before his admission to hospital. The illness began about October 6, with a shivery feeling followed by headache and by pains in the calves and shoulders. The following day vomiting and some diarrhœa occurred, which continued throughout the illness. On the third day he became slightly jaundiced and was irregularly pyrexial. The jaundice increased until it became extreme. For forty-eight hours before his admission to hospital an increasing oliguria with severe albuminuria was present. In the early morning of October 13 the patient had a generalized convulsion followed by coma, and was sent to the Royal Melbourne Hospital and admitted in the care of Dr. Leslie Hurley.

Examination showed the patient to be intensely jaundiced and in a semi-comatose condition. His temperature was 95·6° F., his pulse rate 96 per minute, and his respirations numbered 18 per minute; breathing was regular and stertorous. His systolic blood pressure was 110 millimetres of mercury and his diastolic pressure 52. The conjunctivæ were yellow and hæmorrhagic. The tongue was dry and coated. Examination of the skin revealed numerous petechiæ over the abdomen and back. The heart was normal. There were some crepitations at the base of the left lung. The abdominal wall was voluntarily rigid and examination was difficult. Slight enlargement of the liver and spleen and some tenderness in the right side of the hypochondrium were noted. Examination of the central nervous system elicited exaggerated deep reflexes. The plantar reflexes were flexor in type, and Kernig's sign was present on the left side. There was no neck stiffness.

Soon after his admission to hospital the patient became conscious, but was very restless and irritable and could give little account of his illness. At 9 a.m. he had another generalized convulsion with unconsciousness lasting for about fifteen minutes, again followed by restlessness. He passed a small quantity of deeply yellow urine and a pale soft stool. He was given four and three-quarter pints of 5% glucose in saline solution intravenously, 10 cubic centimetres of 10% calcium gluconate solution intramuscularly, and 10 units of insulin. Foments were applied to the loins every half hour. Paraldehyde, three drachms, was given *per rectum*, but was not retained. At 11 a.m., on account of extreme restlessness, he was given one-quarter of a grain of morphine and one one-hundred-and-fiftieth of a grain of hyoscine. Lumbar puncture was performed and about 10 cubic centimetres of golden yellow fluid were withdrawn. At 2 p.m. his bladder was catheterized and a small quantity of dark brown urine was obtained. Death occurred somewhat suddenly at 4 p.m.

Post-Mortem Findings.

The body was that of a well-nourished, middle-aged man. The skin was intensely jaundiced. There were hæmorrhages in the skin and subcutaneous tissue on both arms. The pericardial sac contained two ounces of clear bile-stained fluid. The heart was small and flabby, and no abnormality was detected. The left pleural sac contained two ounces of bile-stained fluid. The right pleural sac was obliterated by many adhesions over the anterior and posterior surfaces of the lung. Examination revealed pronounced hypostatic congestion of both lungs, with small areas of bronchopneumonic consolidation. The peritoneum was coloured yellow, and about four ounces of bile-stained fluid were present. There were numerous petechial hæmorrhages in the mesentery, about an inch from the bowel. The liver weighed 52 ounces and was soft and flabby; the liver lobules were very poorly defined. There were no hæmorrhages. The bile ducts were normal. The gall-bladder

was normal in size and appearance, and contained one ounce of bile. The pancreas was normal. The duodenum was normal, but a small bead of pus was expressed from the ampulla of Vater. When the ampulla was opened no abnormality was seen. Examination of the stomach and large intestine revealed submucosal hæmorrhages. The small intestine appeared normal. The spleen weighed four ounces and the capsule was wrinkled. The substance was normal. The kidneys were large and swollen. The capsules peeled readily and the normal outlines were preserved. The bladder was contracted and empty. The mucosa was bile stained.

Microscopic Findings.

The Liver.—The liver cells were swollen, and many showed degeneration and early necrosis. There were a few small areas of hæmorrhage. There was some diffuse leucocytic infiltration, chiefly by lymphocytes. Some fat was present, but it did not exceed the normal amount. No spirochætes were seen in silver-impregnated tissue.

The Kidneys.—There were small areas of focal necrosis immediately beneath the capsule of the kidneys, with lymphocytic infiltration and some hæmorrhage. Examination of glomeruli in and near these areas revealed necrosis, and elsewhere the capsular space contained structureless débris. Examination of the epithelium of the tubules revealed some degeneration, and their lumina contained exudate. There was general congestion of vessels, and tiny hæmorrhages were scattered through the substance. No leptospiræ were seen in silver-impregnated tissue.

Laboratory Findings.

By means of the Van den Bergh test it was found that 70 units of bilirubin were present in the serum. There were 241 milligrammes of urea per 100 cubic centimetres of blood. The cerebro-spinal fluid was slightly cloudy and deeply yellow in colour. It contained a slight excess of globulin and 20 polymorphonuclear cells, 62 large mononuclear cells, 65 lymphocytes and 290 erythrocytes per cubic millimetre.

Examination of the centrifuged deposit from the cerebro-spinal fluid and urine by dark-ground illumination revealed no leptospiræ. Post-mortem inoculations of material from the kidneys, lung, liver, adrenals and spleen were made into Noguchi's medium. These were incubated and examined at intervals, but no leptospiræ were seen.

Guinea-Pig Inoculations.

Cerebro-spinal fluid, urine and blood in amounts of five cubic centimetres were each injected intraperitoneally into guinea-pigs on October 13, 1938. On October 24, 1938, the guinea-pigs which had received injections of urine and cerebro-spinal fluid were dead. The animal which had received the blood showed no signs of illness. The post-mortem appearances of the two guinea-pigs were similar. There were no external hæmorrhages at the nose or anus. The subcutaneous tissues were very yellow. Small hæmorrhages were present in the liver and lungs. The spleen and adrenals were deeply injected. There was a small amount of urine containing pus in the bladder. No leptospiræ were seen in the urine or blood of either guinea-pig when it was examined by dark-ground illumination. The urine and blood from both guinea-pigs were inoculated into Noguchi's medium. The liver, spleen, lung, kidneys and adrenals from each animal were macerated with saline solution and the suspension was injected intraperitoneally into two guinea-pigs. On October 29, 1938, one of the guinea-pigs inoculated with organ emulsion from the animal that had received an injection of cerebro-spinal fluid was obviously ill and was killed. *Post mortem* there were no external signs of hæmorrhage. The subcutaneous tissues were jaundiced, but not so deeply as those of the first-passage guinea-pig, and many hæmorrhages were present in the liver, spleen and adrenals. Punctate hæmorrhages were also present in the lungs, giving the typical "butterfly" appearance. Examination of the heart blood by dark-ground illumination revealed an occasional leptospira. None were seen in the urine or in scrapings from the liver, spleen or lungs.

On October 31, 1938, one of the guinea-pigs inoculated with organ emulsion from the animal inoculated with urine was moribund and was killed; *post mortem* the appearances were the same as those previously described. Numerous very active leptospiræ were found in the blood, where they showed up clearly amongst the needles of fibrin. They were also found in scrapings from the spleen and liver, but not in the kidneys or urine. Inoculations from the blood, urine, spleen, lung, liver and kidneys were made into Schuffner's medium and incubated at 30° C. On November 2, 1938, the surviving guinea-pig inoculated with organ emulsion from the animal that had received an injection of urine died; the post-mortem appearances were similar. A few leptospiræ were demonstrated in the blood, but none in the organs. Schuffner's medium was inoculated with blood and kidney, liver, lung and splenic tissue. On the same day the remaining guinea-pig inoculated with organ emulsion from the guinea-pig that had received cerebro-spinal fluid by injection was ill and was killed; the findings were similar. Leptospiræ were found in the blood, lungs and spleen, but not in the liver, urine or kidneys. Inoculations were made as before into Schuffner's medium. Of the many inoculations made into Noguchi's medium, leptospiræ were recovered from the blood of the guinea-pigs inoculated with organ emulsion from the guinea-pigs that had received injections of the patient's urine and cerebro-spinal fluid. Subcultures were made in Schuffner's medium and later in Fletcher's medium.

I am deeply indebted to Dr. E. H. Derrick and Dr. D. W. Johnson, of the Department of Microbiology and Pathology, Brisbane, for much helpful advice during the above examination and for the identification of the strain of leptospira which was forwarded as a subculture in Schuffner's medium. A specimen of serum from the patient obtained on the day of death, and the eighth day of disease, was also forwarded to the same laboratory for agglutination tests for leptospirosis. Dr. Derrick reported as follows:

> Against the Australian strains of leptospiræ, "Pomona", "Ballico", "Zanoni", the serum gave negative results. With an Australian strain of *Leptospira icterohæmorrhagiæ* (Rat 101) there was positive agglutination to a titre of 1 in 30. This titre was too low for the diagnosis of an active infection, but, as the patient died on the eighth day of his illness, the serum would only have a low titre at that stage of the disease.

Dr. D. W. Johnson subsequently reported that the "Melbourne" strain behaved similarly to *Leptospira icterohæmorrhagiæ* in guinea-pigs, causing jaundice constantly and death in three out of five passage animals. He prepared an antiserum to the strain and carried out agglutination tests with the following results:

Antiserum	*versus*	Strain.	Titre.
"Melbourne"		"Melbourne"	1 in 30,000
		Leptospira icterohæmorrhagiæ (Classical Weil's disease type)	1 in 30,000
		Leptospira australis A (North Queensland strain)	1 in 10
		Leptospira australis B (North Queensland strain)	1 in 300
		Leptospira pomona (South Queensland strain)	1 in 10

The agglutination tests of the "Melbourne" strain against antiserum of varying strains gave the following results:

Strain	*versus*	Antiserum.	Titre.
"Melbourne"		*Leptospira icterohæmorrhagiæ* (Classical strain, titre 1 in 30,000)	1 in 10,000
		Leptospira australis A (titre 1 in 1,000)	No reaction
		Leptospira australis B (titre 1 in 3,000)	1 in 30
		Leptospira pomona	No reaction

Brown and Broom[6] have shown that variations in the agglutinating properties occur amongst members of the same serological group. The "Melbourne" strain is therefore identical with *Leptospira icterohæmorrhagiæ* of classical Weil's disease.

Examination of Rats for Leptospiræ.

Rats and other rodents have been shown in many parts of the world to be carriers of pathogenic leptospiræ. The carrier rate varies considerably and is dependent partly

on environmental conditions and also on the age of the rats, young animals seldom being found to harbour the organism. The species *Rattus norvegicus* is recognized as the most frequent carrier. Cotter and Sawers,[2] investigating the Ingham outbreak of leptospirosis, demonstrated the presence of leptospiræ in rats. In 1935 Sawers[7] found that a native rat, *Rattus culmorum*, was the chief reservoir of the infection in the canefields. Johnson, Brown and Derrick,[5] in 1936, examined 85 rats in Brisbane and found two carriers harbouring *Leptospira icterohæmorrhagiæ*, and in 1937 examination of a further series of 100 rats showed 6% to be carriers. Between 1935 and 1937 Sawers[7] examined 102 rats in Sydney, with negative results.

Through the courtesy of Dr. John Dale, the medical officer of health, city of Melbourne, rats caught in the metropolitan area were made available for examination for leptospiræ. The series was small; it consisted of 95 rats, of which 74 were *Rattus norvegicus* and 21 *Rattus alexandrinus*. The first 54 rats were killed during capture and were therefore not examined immediately after death. Smith,[8] in his report on leptospiral infection of rats, stated that no positive results were obtained from rats which had been killed some time before examination, owing to the action of immune bodies on the leptospiræ after death. Rats were then obtained in cage traps and killed by coal gas. Three-quarter grown and fully grown rats were selected. The kidneys were immediately removed, emulsified with saline solution and injected intraperitoneally into guinea-pigs. In most instances one guinea-pig received the kidney emulsion from two rats. Friable kidneys were not noted in any animal. A few guinea-pigs succumbed to the injection. The animals were closely watched for three weeks, but no signs suggesting leptospiral infection resulted.

Discussion.

In 1938 Cotter suggested the probability that leptospirosis in rat and man might not be confined to Queensland. The carrier rate in rats, however, has so far been found to be low, and the incidence of the disease in man will therefore probably be confined to sporadic cases.

The occupation of the patient here reported—that of a fish worker—is one well recognized as implying exposure to likely infection. Working with the hands immersed in water and with abrasions coincident to the occupation offers ideal conditions for the entrance of leptospiræ, should contamination of the water with infected rats' urine have taken place. Davidson and Smith[10] reported 41 cases of Weil's disease in Aberdeen; 40 of the patients were concerned with the handling and cleaning of fish. Smith and Davidson,[10] in a further investigation of the incidence of the disease in fish workers, found that serological reactions were obtained in 24·2% of 210 persons examined. The patient under discussion presented the classical features of a severe attack of Weil's disease with sudden onset, severe muscular pains, extreme jaundice, conjunctival hæmorrhages, oliguria and albuminuria. Symptoms of meningeal irritation were also present. With the identification of the infecting organism as *Leptospira icterohæmorrhagiæ* this case is classified as Weil's disease. Four types of leptospiræ have been identified in Queensland. It is suggested by Johnson, Brown and Derrick[5] that the term "Weil's disease" be restricted to the infection with *Leptospira icterohæmorrhagiæ* and that infections due to other leptospiræ should be designated leptospiroses. This is in conformity with the leptospiral diseases of Japan and Europe.

With the occurrence of this case in Victoria further protective public health measures are indicated, especially in those occupations associated with stagnant water, and in places where rats are likely to be prevalent. Smith and Davidson[10] made suggestions regarding improvements in the conduct of the fish markets of Aberdeen which would minimize the risk of infection of the workers concerned.

Summary.

The clinical history of a patient with classical Weil's disease is reported, *Leptospira icterohæmorrhagiæ* being isolated from the cerebro-spinal fluid and urine. A small series of rats was investigated for leptospiral infection, with negative results.

Acknowledgements.

I have previously acknowledged my indebtedness to Dr. E. H. Derrick and Dr. D. W. Johnson, of the Department of Microbiology and Pathology, Brisbane. I also wish to thank Dr. Leslie Hurley for permission to publish the case; Dr. John Dale, the medical officer of health, city of Melbourne, for affording the opportunity to examine a series of rats; Dr. John Horan for the post-mortem notes; and Dr. Wright Smith for the examinations of the sections.

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THREE CASES OF MENINGITIS WITH UNUSUAL FEATURES: TREATMENT WITH "M & B 693".

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Case I.

K.G., a male patient, aged one year and eight months, was brought from the country to the Royal Prince Alfred Hospital on November 15, 1939. His mother stated that the child had been drowsy and irritable for three weeks; during the whole of this time he had been losing weight fast, had not been eating or sleeping, and was rapidly becoming worse. It had been suggested that the child was suffering from a cerebral tumour, owing to what the mother described as a gradual increase in size of the child's head.

On examination the child had obviously lost weight; he was merely skin and bone, and presented the typical scaphoid abdomen. He was very pale and exhibited spasmodic movements of the right arm and right leg, the left side being paralysed. The head was enlarged and the eyes were staring; but there was no evidence of strabismus, ptosis or proptosis. The muscles of the left side of the face were weak. Definite neck rigidity was present; Kernig's sign was elicited and the child was extremely irritable, resenting all examination and frequently crying out in the classical hydrocephalic fashion. The knee and ankle jerks were present on the right side, but absent on the left. On this latter side there was an extensor (Babinski) response.

Other features at this stage were the presence of râles and rhonchi over the right lung. The pulse rate was 130 and the respiration rate 26 per minute, and the temperature was 99·4° F.

The baby had lived in the country since birth, was the second child of healthy parents, and to the best of their knowledge had not recently been in contact with any other children or adults suffering from infectious disease.

At this stage a diagnosis of tuberculous meningitis was made and lumbar puncture was performed with the following findings. The cerebro-spinal fluid was under a pressure of 300 millimetres of water; it contained 806 cells per cubic centimetre and 200 milligrammes of protein, 700 milligrammes of chloride, and 17 milligrammes of sugar per 100 cubic centimetres. A profuse growth of *Hæmophilus influenzæ* was obtained on culture.

Treatment with "M & B 693" was commenced; 0·17 gramme was given three times a day, and when the diagnosis had been confirmed by culture the dosage was increased to 0·25 gramme three times a day, so that during the first three days 2·6 grammes were given.

On November 19, 1939, owing to a fall in the number of erythrocytes, treatment with "M & B 693" was discontinued

until November 23, 1939, when over the next three days a further 2·6 grammes were given.

During the first weeks "Coramine", adrenaline and morphine were given frequently. The child also received cough medicine, cod liver oil and iron.

Lumbar puncture was performed repeatedly and during the child's illness 34 such procedures were carried out, 20 during the first 21 days. On several days, owing to the extreme head retraction, tachycardia and prostration, this operation was carried out several times, once combined with cisternal puncture. The Queckenstedt test elicited a positive response throughout the illness. In Table I are given some of the results of examinations of the cerebro-spinal fluid.

The waxing and waning of the number of cells were attributed to the fact that massage and movements were gradually introduced; sometimes these were followed by an increase in the number of cells in the cerebro-spinal fluid and slight pyrexia. This was ascribed to the breaking down of adhesions at the base of the brain.

The results of blood counts made during this period have also been interesting. Table II shows the gradual fall in the number of neutrophile cells and the gradual increase in the number of lymphocytes as the condition gradually became controlled.

On November 20, 1939, an X-ray examination of the skull was made and the following report was received:

> Very marked stretching of the cranial sutures, especially the coronal and sagittal; appearance suggests neoplasm.

The pulse rate during the first ten days was rarely under 160 per minute, while the temperature wavered between 99° and 100·6° F.

After relief of the intracranial tension the child's condition improved slightly; he recognized his mother. But on November 23, 1939, he was extremely ill, perspiring profusely, exhibiting pronounced head retraction and neck rigidity; the pulse was not countable. One-quarter of a cubic centimetre of "Coramine" and three minims of adrenaline were given every hour and one-thirtieth of a grain of morphine was finally given to control his extreme restlessness. At this stage his condition appeared hopeless and the child was almost moribund. However, this state persisted for almost a week, during which time fluids only were taken.

On December 1, 1939, he appeared much better; the neck rigidity and head retraction had become less. A few movements of his left leg were noted and he began to talk. Twitchings also ceased and his eyes lost their vacant expression. Milk and milk foods were being taken and his pallor appeared to be lessening. Massage was now commenced to the left leg and arm, together with gentle passive movements of all the limbs and neck; the left leg was also suitably splinted to avoid flexion deformity.

A week later movements of his left hand and arm were noted, associated with improvement in his general condition. By the end of December he was on the road to recovery, but still extremely wasted and still suffering from small rises in temperature associated with attacks of bronchitis. However, even up to the end of January he was unable to follow objects with his eyes, though it was thought that he could distinguish light from dark. To outward appearance he seemed blind.

At the end of February he was hardly recognizable as the same baby, having gained over a stone in weight; he was speaking well, was bright and was recognizing people, but was still unable to coordinate eye movements. The last trouble, however, was not evident three weeks later; but it was still thought that he was blind in his left eye. His intelligence did not appear to be impaired, and he had lost all rigidity and regained movements and power on the left side.

By the end of April he was very well, except that his neck muscles were still not strong enough to support his head. However, now (at the end of May) he can sit up with ease, is learning to walk, and, what is most pleasing, mentally he is quite normal.

Comment.

I have recorded this case at some length for the following reasons: (i) Because of the recovery in an apparently hopeless case; the child had been untreated for three weeks, and when he was first examined he had hemiplegia, hydrocephalus and anæmia, and was in an almost cachectic state. (ii) Because of the part played by "M & B 693", combined with frequent lumbar punctures to relieve the gross intracranial pressure and to prevent the formation of adhesions in the areas at the base of the brain. Recently it has been suggested that it is unnecessary to carry out lumbar puncture as frequently as usual when "M & B 693" is being used; it is stated that if lumbar puncture is performed the concentration of the drug in the cerebro-spinal fluid is reduced. However, this case illustrates the importance of mechanical drainage. (iii) Because of the child's apparent blindness for some months following the illness, with recovery of his sight. (iv) Because of the fact that his intelligence does not appear to have been impaired at all, in spite of the existence of hydrocephalus during the early weeks.

One very large factor to which the child's recovery is due was the untiring attention of the sister and nursing staff in the isolation block at the Royal Prince Alfred Hospital. Their patience in feeding the child and in his general care played a tremendous part in his gradual recovery.

Case II.

R.N., a male patient, aged two and a half years, was admitted to the Royal Prince Alfred Hospital on December 16, 1939, having been ill for only twelve hours. His mother

TABLE I.

Date.	Pressure. (Millimetres of Water.)	Cells. per Cubic Centimetre.	Protein. (Milligrammes per 100 Cubic Centimetres.)	Sugar. (Milligrammes per 100 Cubic Centimetres.)	Chloride. (Milligrammes per 100 Cubic Centimetres.)	Results of Bacteriological Examination of Fluid.
16/11/39	300	806	200	17	700	Pure culture of *Hæmophilus influenzæ*.
18/11/39	300	2,900	300	—	—	Sterile.
20/11/39	250	876	200	—	—	Sterile.
23/11/39	300	2,390	300	—	—	Sterile.
30/11/39	190	498	200	—	—	Sterile.
8/12/39	190	1,050	100	—	—	Sterile.
21/12/39	150	153	150	—	—	Sterile.
26/1/40	150	1,760	100	—	—	Sterile.
17/2/40	90	4	20	61	710	Sterile.

TABLE II.[1]

Date.	Erythrocytes per Cubic Millimetre.	Hæmoglobin Value. (Percentage.)	Leucocytes per Cubic Millimetre.	Differential Leucocyte Count.				Sedimentation Rate. (Millimetres in One Hour.)
				N.	L.	M.	E.	
				%	%	%	%	
15/11/39	5,030,000	78	17,900	80	12	8	—	25·5
20/11/39	3,710,000	67	7,000	76	17	6	1	—
22/11/39	4,350,000	75	11,500	72	24	4	—	—
4/12/39	4,540,000	80	6,300	50	39	11	—	—
11/12/39	4,550,000	82	13,000	62	31	7	—	8·0
10/1/40	4,550,000	89	5,400	49	39	8	4	—
7/3/40	4,460,000	85	6,400	39	52	8	1	—
26/4/40	4,670,000	94	7,800	35	52	6	7	4·0

[1] N = neutrophile cells, L = lymphocytes, M = monocytes, E = eosinophile cells.

said that the boy had gone to bed on the previous evening perfectly well, but had awakened the following day restless and very irritable. All day he had refused food and was becoming more drowsy.

On examination the child looked ill; his face was puffed and pale, his lips were slightly cyanosed and he was very restless lying in bed, his arms twitching continually. Otherwise he appeared well nourished. At this stage his pulse rate was 150 and his respiration rate 54 per minute, and his temperature 103·8° F. There was no evidence of any ocular palsies; but he had some slight neck rigidity and Kernig's sign was elicited. His lungs seemed normal on clinical examination.

Lumbar puncture was performed immediately, and the following findings were recorded: the cerebro-spinal fluid was under a pressure of 240 millimetres of water; there were 5,450 cells per cubic centimetre; the protein content was 300 milligrammes per 100 cubic centimetres. On culture a pure growth of meningococci was obtained. Lumbar punctures were repeated on the following days, and the results are shown in Table III.

Table III.

Date.	Cerebro-spinal Fluid Pressure. (Millimetres of Water.)	Cells per Cubic Centimetre.	Protein. (Milligrammes per 100 Cubic Centimetres.)	Bacteriological Examination of Cerebro-spinal Fluid.
16/12/39 ..	240	5,450	300	Pure growth of meningococci.
18/12/39 ..	150	517	40	Fluid sterile.
19/12/39 ..	120	140	30	Fluid sterile.
21/12/39 ..	120	129	60	Fluid sterile.
30/12/39 ..	110	31	20	Fluid sterile.

In this case "M & B 693" had been given and the diagnosis had been confirmed by lumbar puncture within twelve hours of the onset of symptoms. On the second day of the illness the child's pulse rate was 170 and his respiration rate 75 per minute; his temperature was 101·8° F. By the end of the fourth day the child was clinically cured; his pulse rate was 105, his respiration rate 30 per minute and his temperature normal. Three grammes only of "M & B 693" were given during the first three days and 2·4 grammes were given over a further period of three days after an interval of two days.

Owing to the lusty nature of the child, after the first lumbar puncture two drachms of paraldehyde in saline solution were given *per rectum* half an hour before each lumbar puncture. This procedure was carried out six times in all.

On January 5, 1940, the child did not appear to be regaining his colour so quickly as was expected from such pronounced improvement. A blood count was immediately carried out and the following results were obtained: the hæmoglobin value was 66%; the leucocytes numbered 9,900 per cubic millimetre, 9·5% being neutrophile cells, 75·5% lymphocytes, 10% monocytes, and 4·5% eosinophile cells.

The neutropenia is rather significant, in spite of the fact that such small quantities of "M & B 693" had been given; it emphasizes the need for blood counts when this drug is given in any quantity. There were no clinical signs of agranulocytosis.

Unfortunately the child was discharged from hospital on January 9, 1940; but on April 29, 1940, he was brought to the hospital on request and a further blood count was made; the following results were obtained: the erythrocytes numbered 5,060,000 and the leucocytes 11,060 per cubic millimetre; the hæmoglobin value was 80%; of the leucocytes, 38% were neutrophile cells, 45% were lymphocytes, 7% were monocytes, 9% were eosinophile cells, and 1% were basophile cells.

Comment.

I have recorded this case as a contrast to the first one, as the response to "M & B 693" and the relief of intracranial pressure were really dramatic. Of course, in this case there is a different ætiological factor, namely, the meningococcus, and not *Hæmophilus influenzæ*.

Case III.

G.W., a female patient, aged twenty years, was admitted to the Royal Prince Alfred Hospital on August 20, 1939, complaining of headache and vomiting of one day's duration, associated with a feeling of malaise and drowsiness.

On examination the patient seemed ill; but she exhibited no muscular spasms and had no strabismus and no loss of motor power. However, the muscles of the limbs were hypertonic and pronounced neck rigidity was present; Kernig's sign was elicited. Her temperature was 100·2° F.

Lumbar puncture was performed at once and the following results were obtained: the cerebro-spinal fluid was under a pressure of more than 300 millimetres of water; there were 4,400 cells per cubic millimetre; the protein content was 40 milligrammes, the chloride content was 700 milligrammes, and the sugar content was 35 milligrammes, each per 100 cubic centimetres; a pure growth of *Hæmophilus influenzæ* was obtained on culture. Lumbar puncture was repeated three times, with the results shown in Table IV.

Table IV.

Date.	Cerebro-spinal Fluid Pressure. (Millimetres of Water.)	Cells per Cubic Centimetre.	Protein. (Milligrammes per Cubic Centimetre.)	Bacteriological Examination of Cerebro-spinal Fluid.
21/8/39 ..	240	4,400	40	*Hæmophilus influenzæ.*
24/8/39 ..	90	243	30	Fluid sterile.
28/8/39 ..	90	94	20	Fluid sterile.

In all, lumbar puncture was carried out seven times. After the first four days this was done only to relieve the headache.

In this case, as the patient was an adult, larger doses of "M & B 693" were given—namely, 14 grammes during the first two days and another 14 grammes after an interval of one day for a further two days. During this time "check" blood counts were carried out and very little change was noted, except that after treatment with "M & B 693" was suspended on August 24, 1939, there was a pronounced shift of the neutrophile cells to the left. For example, on August 21, 1939, the erythrocytes numbered 4,440,000 and the leucocytes 13,250 per cubic millimetre; of the leucocytes, 87% were neutrophile cells, 9% were lymphocytes and 4% were monocytes. On August 23, 1939, the number of leucocytes had fallen to 5,950 per cubic millimetre, after three days of treatment, and there was no change in the results of the differential count. On August 28, 1939, the leucocytes numbered 10,850 per cubic millimetre; of the 72% neutrophile cells, 38% were young forms.

There were no untoward symptoms during the course of treatment, and after five days the patient was free from headache and showed very little neck rigidity. Her convalescence was uneventful and there were no sequelæ.

Acknowledgements.

For permission to publish these cases I am indebted to Dr. C. G. McDonald, in whose care these patients were and under whose direction I was privileged to work as a resident medical officer at the Royal Prince Alfred Hospital, Sydney. I should also like to express my thanks to the members of the pathological department, whose cooperation in these cases was more than helpful.

Reviews.

A TEXT-BOOK ON HYGIENE.

A new edition of "Notter and Firth's Hygiene"[1] is like the rejuvenation of an old friend, for it has passed through nine previous editions, the first having been published in 1894. The book has been completely revised by Dr. L. C. Adam and Dr. E. J. Boome, who are well-known and experienced medical officers in the London County Council. It supplies a vast amount of information on practically all aspects of hygiene and preventive medicine, but limitations of space have rendered it necessary to condense and abbreviate some of the subjects somewhat unduly.

The book will admirably meet the needs of medical students, social workers and others who require an authoritative text-book; but it cannot be intended for detailed reference in all branches of public health. Several important subjects, such as sewage treatment, maternal welfare *et cetera*, have been condensed, whilst industrial health hazards are mentioned only briefly.

It is somewhat unusual to include the first-aid treatment of accidents in a publication of this kind, and the advisability of including practical laboratory work in a general text-book is doubtful. In the space allotted it is not possible to do justice to such subjects as water analysis and bacteriology, which necessitate the more detailed exposition of special text-books. These criticisms, however, do not diminish the value of this publication as a reliable text-book, the price of which certainly represents a remarkable achievement.

[1] "Notter and Firth's Hygiene", revised by L. C. Adam, M.B., B.S., and E. J. Boome, M.B., Ch.B., M.R.C.P., D.P.H., T.D.; Tenth Edition; 1940. London: Longmans, Green and Company. Demy 8vo, pp. 518, with illustrations. Price: 12s. 6d. net.

The Medical Journal of Australia

SATURDAY, OCTOBER 5, 1940.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

THE MEETING OF THE FEDERAL COUNCIL.

ALL the Australian Branches of the British Medical Association were represented at the recent meeting of the Federal Council, held at Sydney and reported in this issue. It is our custom to draw attention in the editorial columns to the more important matters considered by the Council, in the hope that members of the Branches will not only become familiar with the deliberations of their chief executive body, but will also obtain a grasp of their significance in regard to future developments. Meetings of the Federal Council during the present war make greater demands on its members than they do in peace-time; but they are also, we believe, more necessary. A glance at the headings in the report of the meeting will show that the discussions dealt with matters that have a bearing on Australia's efficiency as an effective participant in the war, and with aspects of professional life that are most significant whether Australia is at war or not. The suggestion that for reasons of economy the representation of each Branch might be limited for the duration of the war to one member was carefully considered at the meeting, and we believe that the Branches will welcome the decision that no change shall be made.

Before we pass to matters further afield, attention must be drawn to the important discussion that took place on the relationship between the Australasian Medical Publishing Company, Limited, and the several Branches, and to the conference between the directors of the company and the Federal Council. It was quite clear to those present that the discussion was activated by a common desire to make THE MEDICAL JOURNAL OF AUSTRALIA of the greatest possible use to the Branches and their members. The decision that the drawing up of an agreement between the Federal Council and the Australasian Medical Publishing Company, Limited, should be considered by the Branches will, we trust, finally cement the relationship between this journal and those whom it serves. Perhaps it is only fair to point out that in regard to the present arrangements no blame can attach to those who established the journal in 1914. At that time the Federal Committee acted as a consultative body between the several Branches. It was not a corporate body and could not, therefore, enter into a legal agreement. Nor could such an agreement be drawn up between all the Branches and the Australasian Medical Publishing Company, Limited, because some of the Branches were incorporated bodies and some were not. In these circumstances the present arrangements, which have served the profession for more than twenty-five years, were made. We pass from this subject by expressing the hope that the suggested agreement will be completed and that, if possible, the scope of the journal's activities will be widened and its effectiveness increased.

From the point of view of the war, the discussion on the coordination of medical services and on the administration of army medical services are of the first importance. The information given by the Federal Council's representatives on the Central Coordination Committee will be welcomed by medical practitioners throughout the Commonwealth. There has been somewhat of an air of mystery about this committee and its functions, and perhaps this has been unavoidable and even necessary. Work of this kind, especially in its early stages, has to be largely confidential, and it is not surprising that Branch officials such as Professor W. K. Inglis should express concern regarding its effectiveness. We are not in a position to determine whether the fears expressed by Professor Inglis are justified, but we may be grateful to him for having come forward to express his views. It is to be hoped that the representations that are to be made to the Director-General of Medical Services, requesting that the several coordination committees shall deal more fully with both civil and defence matters, will bear fruit. At this stage it should be noted that the committee of the Federal Council which has access to the Director-General of Medical Services has had its scope extended. Before this meeting it was concerned mainly with matters in the limited sphere stated in the report of the meeting. A distinct advance has therefore been made in the provision that this committee shall now be permitted to deal with any matters affecting the personnel of the armed forces that are referred to the Federal Council. The profession will now be able to bring to the notice of the Director-General of Medical Services, without irksome delay, any matters concerning the welfare of the forces. This brings us to the recommendation arising from the discussion on the administration of the army medical services occasioned by the deplorable lapse of two members of the British Medical Association who approached the Prime Minister of the Commonwealth and who had the temerity to suggest that they were speaking for the whole of the medical profession. Out of this ill-conceived affair, however, some good may arise. The Federal Council has now an opportunity of urging the inclusion of the Director-General of Medical Services as a member of the Military Board. We do not expect that this recommendation, so obviously based on common sense, will be received with enthusiasm by the officers on the Military Board. Army tradition dies hard; but no one who has any real conception of the important place taken by the army medical services in the gathering

together, the equipment, and the fighting power of an army, will expect its army medical services to be really efficient if its head is not present at army deliberations and has no right to make his voice heard should he think it necessary. It must also be pointed out that, although decisions of the Military Board affecting the army medical services are usually made known to the Director-General of Medical Services and carried into effect by him, it is possible under present conditions for army orders to be issued to the deputy directors of medical services without the knowledge of the Director-General. Our expectation that the Federal Council's recommendation will be given a cold reception is justified when we remember the very long time that lapsed in pre-war days before the recommendation was adopted that the Director-General of Medical Services should be sent abroad to study modern army medical administration. The request for an opinion in the present instance came to the Federal Council from the Prime Minister through the Director-General of Medical Services, and we must presume that the Council's recommendation will reach the Prime Minister without delay.

In view of the papers and discussions that have been published in this journal on the organization of the medical profession to cope with the needs of the future, attention must be directed finally to the fact that the Federal Council had before it a report on a general medical service drawn up by a subcommittee of its members. This report is to be completed by the addition of a section dealing with finance. The completed document will be considered by the Branches before it is published. It is not too much to expect that the Branches will approach this matter with minds freed from parochialism and alive to the needs of the future. In this matter alone the next meeting of the Federal Council is already marked as a notable occasion.

Current Comment.

THE CENTENARY OF "THE BRITISH MEDICAL JOURNAL".

The British Medical Journal is celebrating its centenary on October 5, 1940. The occasion is notable not only for reasons of longevity, but because with age has come a world-wide sphere of influence. Greetings have already been sent from The Medical Journal of Australia and the hope has been expressed that *The British Medical Journal* will in the future find increasing opportunities to serve the cause of humanity with the same devotion and singleness of purpose that it has always shown. The British Medical Association extends to every part of the British Empire, and its journal has, therefore, unique opportunities of influencing the thought and practice of a very large number of persons. In the present war the Parent Body has been entrusted with what are in effect almost departmental functions. As far as can be gathered, the trust imposed in the Association has been more than justified, and some of the credit for this success must surely be given to the Association's journal.

Readers will remember that the British Medical Association celebrated its centenary in 1932. It was founded by Charles Hastings, of Worcester, and originally bore the title of the Provincial Medical and Surgical Association. It was not until 1856 that the name British Medical Association was substituted for the original title. At first the Provincial Medical and Surgical Association published *Transactions*; the first volume appeared in 1833 and the last twenty years later. In 1840, however, two members of the Association, Dr. Green and Dr. Streeton, founded the *Provincial Medical Journal*. They carried it on as a private venture for three years, and on April 3, 1844, it was taken over by the Association, and under the title of *Provincial Medical and Surgical Journal* became the official organ. In 1853 the name was changed to *Association Medical Journal*. In 1856, when the name British Medical Association was adopted, it was resolved to change the name of the journal, which in 1857 appeared as *The British Medical Journal*.

The history of *The British Medical Journal* may be described as a history of its editors. The man who probably did more than anyone else to give to the journal its present standing was Ernest Hart, who succeeded Dr. Markham as editor in 1866. This remarkable man was of Jewish extraction, was a brilliant scholar and had an unusual capacity for organization. He was editor for thirty-three years. Not only was his knowledge of journalism intimate and thorough, but he was able to attract to his side men well qualified for the tasks that he allotted to them. He was interested particularly in preventive medicine, and took an active share in its extension in many directions. He recognized the importance to the Association of a library and was largely instrumental in founding the library at present housed at Tavistock Square; he was its first honorary librarian. In 1881, two years before Ernest Hart's health began to decline, Dawson Williams became a member of the journal staff. In 1898 Ernest Hart died, and we find him referred to in his obituary notices as a philanthropist, a sanitary reformer and a *littérateur*. Dawson Williams became editor after being associated with the journal for seventeen years. He has been described as a wise man with a broad outlook and a passion for detail. It was not long before he showed that he could control the affairs of the journal, and he gained the full trust and support of the officials of the Association. He was a tower of strength at the time of the introduction of the Insurance Bill, and piloted the journal through the difficult times of the war of 1914-1918. Dawson Williams had been in private practice as a consulting physician and had a lively interest in pædiatrics. This was an important factor in the establishment of *Archives of Disease in Childhood*, a journal valued by all pædiatricians. He was for years fortunate in having Charles Louis Taylor as his assistant. Dawson Williams received many honours. He was knighted in 1921, and also in that year received the Gold Medal of the British Medical Association. Several universities in the United Kingdom conferred honorary degrees upon him, and he died in 1928. He had the satisfaction of seeing the offices of *The British Medical Journal* transferred from the old building in The Strand to British Medical Association House in Tavistock Square. This magnificent structure, which is, or should be, the Mecca of all overseas members of the British Medical Association visiting London, was designed by Sir Edwin Lutyens and opened by King George V in 1925. Dr. N. G. Horner was appointed editor on the resignation of Dawson Williams in December, 1927. He had been assistant editor for eleven years, and of him it may be truly said that he carries on the tradition of his predecessors.

In addition to the relationship which The Medical Journal of Australia bears to *The British Medical Journal* through the Australian Branches of the British Medical Association, we recall that Henry William Armit, who came to Australia as editor of this journal in 1914, was for many years associated with *The British Medical Journal* under the late Dawson Williams.

Members of the British Medical Association in Australia join in wishing *The British Medical Journal* a long and useful future.

VITAMIN A METABOLISM IN CHILDREN.

The clinical recognition of early vitamin *A* deficiency in children is a matter of great difficulty. The earliest sign, the appearance of cornified epithelium in sites where

it does not usually occur, such as the nose, trachea, kidneys and vagina, appears only after several months of complete vitamin deprivation. The measurement of night blindness, a more sensitive test, is not possible with small children by present techniques. As long ago as 1926, however, Carr and Price showed that vitamin *A* reacted with a chloroform solution of antimony trichloride to form a blue colour, the intensity of which gives an accurate estimate of the amount of vitamin *A* present. Other substances give a similar blue colour with antimony trichloride; but only the carotenoids are of significance when the reaction is applied to blood. The colour formed by vitamin *A* and by the carotenoids can be separated by the use of selective light filters with a photo-electric colorimeter. Using such a technique, which they describe in detail, C. D. May, K. D. Blackfan, J. F. McCreary and F. H. Allen have made a study of vitamin *A* in children in health and disease.[1] The level of the carotenoids, precursors of vitamin *A*, was also studied. In normal children, of ages ranging from infancy to twelve years, levels of vitamin *A* ranging from 5·5 units to 27·3 units and of carotenoids from 3·7 to 75·7 units were found. The level in infants, despite the administration of accessory vitamin *A*, tended to be lower than in children over the age of two years. Little significant variation could be found from hour to hour or from day to day in normal individual children. However, the ingestion of quite ordinary doses of vitamin *A* concentrates caused a marked transitory rise in the level in the blood within three to five hours, with a return to the original level in about twenty-four hours.

In infants and children who are otherwise healthy, a reduction in the intake of vitamin *A* and carotenoids causes a fall in the blood level of both the vitamin and its precursors. The levels do not fall below normal until intake has been severely restricted for several weeks; this suggests a considerable body storehouse of these substances. The level falls well below normal, however, before any clinical evidence of vitamin *A* deficiency appears. The fall in carotenoids precedes the fall in vitamin *A* by several weeks; this suggests that a store of carotenoids is used up by conversion to vitamin *A* to keep the level of this substance in the blood normal. When this store is depleted the fall of the vitamin level in the blood commences.

The rate of absorption of vitamin *A* from the bowel of normal children was measured by the oral administration of a standard dose of 0·1 cubic centimetre of percomorph liver oil per pound of body weight. This resulted in a rise in the blood level of vitamin *A* of from 52 to 231 units above the fasting level in three to five hours, the average rise being 130 units. In certain conditions the level of the vitamin in the blood did not rise after such an oral test dose. These conditions were cœliac disease, congenital obliteration of the bile ducts, pancreatic fibrosis and cretinism, conditions in which there is also an impaired ability to digest fats. It is presumed that in these conditions the failure is one of absorption of the fat-soluble vitamin from the bowel. There is no evidence of excessively rapid destruction to account for the low levels found in the blood. The impairment of absorption from the bowel in these conditions was not complete, for the vitamin in the blood was kept at a normal level when unusually large amounts of vitamin *A* were given by mouth, preferably in divided doses. This is an observation of great significance for the pædiatrician who treats these conditions.

ELECTROCARDIOGRAPHY AFTER EXERCISE IN THE DIAGNOSIS OF HEART DISEASE.

It has been known for more than twenty years that sometimes during spontaneous attacks of cardiac pain abnormalities in the electrocardiogram may be observed which were not present before the attack and which disappear after its subsidence. It has since been established that in persons subject to angina of effort similar abnormalities may not infrequently be produced if an attack of pain is brought on by exercise. These abnormalities are of the kind that indicate myocardial ischæmia and do not resemble the changes occurring in the electrocardiograms of normal persons after exercise. Such observations can, of course, be applied as an aid to diagnosis when coronary arterial disease is suspected but not evident; but different writers have been at variance in their opinion of the value of the method, which so far has not been widely practised. Some writers have held that it fails to give results in a considerable proportion of cases and is not free of risk, while others have claimed that it is of great value in corroborating objectively a diagnosis based otherwise only on the history of subjective symptoms and in assessing the degree of the morbid changes and the effect of treatment. The subject has recently been briefly reviewed and further investigated by A. Schott.[1]

Schott selected for his investigation fifty patients complaining of pain or discomfort in the chest or epigastrium; some suffered from angina of effort, some had organic heart disease without angina of effort, and there were thirty-one in whom the symptoms were not related to effort. Of this last group, the resting electrocardiogram gave evidence of myocardial affection in five and was inconclusive in another; in all six of these patients the electrocardiographic evidence of heart disease was unequivocal after exercise. In twenty-five of the group the electrocardiogram was normal during rest; in four of these there was evidence of myocardial affection in the electrocardiogram after exercise and one patient experienced numerous extrasystoles after exercise; in regard to the remaining twenty, whose electrocardiograms were normal at rest and after exercise, a diagnosis of some extracardial disease capable of causing the symptoms could be established in all but two cases.

The technique of the method is, of course, important. For exercise Schott put his patients through the two-step test—that is to say, he made them walk up and down a two-step staircase having a total height of eighteen inches; the first tracing was usually recorded about seventy seconds after the exercise and usually all the records were made within one minute. It was found that no additional evidence of diagnostic value was obtained by the use of a chest lead in the electrocardiography as far as the changes after exercise were concerned. This investigation illustrates well both the scope and the limitations of the method of electrocardiography after exercise in the diagnosis of heart disease.

[1] *American Journal of Diseases of Children*, June, 1940.

A NEW MEDICAL STUDENTS' JOURNAL.

The Queensland Medical Students' Association, which was established in 1936 by the students of the Faculty of Medicine of the University of Queensland, has issued the first number of its journal, *Trephine*. Every students' association requires a journal, and the more active the association, the more lively will be the journal. Queensland students are to be congratulated on the general appearance and style of their journal. It is a dignified production and yet is well tinged with the flavour that one expects to find in a magazine published by medical students. We gather from its pages that the sixth year of medicine has 21 students; from these the first graduates of the Faculty of Medicine in Queensland will be chosen later on in this year. We can but endorse the view of Dr. E. S. Meyers, of the Department of Anatomy, that the students have done well to produce the first issue of their journal so early in the history of their association. It is also important that the venture has been launched without any financial help from the Senate, the Faculty or the Students' Union. We hope that this publication will achieve success as a "custodian of the students' rights and an ardent advocate of scientific advancement".

[1] *Guy's Hospital Reports*, 1939.

Abstracts from Medical Literature.

GYNÆCOLOGY.

Encephalitis following Septic Abortion.

VON H. v. WATTENWYL (*Monatsschrift für Geburtshülfe und Gynäkologie*, Volume CX, Number 6, 1940) records in detail the findings in a fatal case of meningo-encephalitis following a septic abortion and due to *Bacillus coli* infection. Only one similar case has been reported. In a short survey of the literature the author states that such infection is very rare.

The Cold Test and the Menstrual Cycle.

C. CROCI (*Monatsschrift für Geburtshülfe und Gynäkologie*, Volume CX, Number 6, 1940) has investigated the effects of the cold test during the menstrual cycle in a series of 18 cases. In 14 there was a diminution in the vascular reactions during ovulation. The reasons for different results in the remaining cases are discussed, and the author concludes that the findings in the majority are an indication of ovulation. Further work has been planned in order to substantiate this hypothesis.

Ovarian Dysgerminoma.

S. SAILER (*The American Journal of Cancer*, April, 1940) reports on five cases of ovarian dysgerminoma in women between the ages of ten and twenty-one years. Four of the tumours occurred in the right ovary and one in the left. This group represents an incidence of 6·1% among a series of 80 primary malignant ovarian tumours. The microscopic appearance of these tumours, including the number of mitoses, appears to be an unreliable indicator of growth potentiality. All of the tumours studied were very cellular and showed a striking resemblance to testicular seminomata. One tumour, in a ten-year-old coloured girl, recurred a year following removal, with extensive pelvic, peritoneal and probable lung metastases. Death occurred one year and eight months after removal of the primary growth. Three other patients are living and well, without evidence of tumour, three, four and six years after operation. The remaining patient is symptom-free eight months following removal of the tumour. None of those still living received X-ray therapy either before or after operation. One patient had a child born two years prior to removal of the tumour, and had two normal full-term pregnancies two and four years respectively following operation. Regarding the histogenesis of these tumours, the author accepts Robert Meyer's theory, according to which they originate from sexually indifferent germ cells.

Vaginal Thrush.

W. G. LISTON AND LEWIS G. CRUICKSHANK (*Edinburgh Medical Journal*, June, 1940) review the history of thrush, and discuss the confusion in the nomenclature of the thrush parasite. They then record a series of 49 cases of vaginal thrush in a series of 200 consecutive pregnant women suffering from leucorrhœa, and describe the methods of examination of the patient and of detection of the parasite in material collected from the vagina. The authors plead for the use of the long-established names *Oïdium albicans* for the parasite and thrush for the disease. The disease should be sought for and treated before confinement, lest the baby become infected. Half of the patients suffering from thrush whose urine was examined had sugar in the urine at some time during the pregnancy. In a number of instances there was a buttermilk-like discharge. Typically there were whitish-yellow patches on the deep reddish purple congested mucosa of the cervix and vagina. These white patches are often slightly adherent to the surface, so that when they are removed they leave a raw leeting surface, which seldom bleeds. Films made from the white patches and stained by Gram's method showed that pus cells were more numerous than epithelial cells. Long hyphal filaments of the fungus as well as blastospores should be present before a definite diagnosis is made. The blastospores may be adherent to the mycelium or free as yeast-like cells. The presence of the parasite in the vagina seems to depend in large part on the pH reaction of the vaginal contents. The common pH reading in this condition was 4·8, in normal pregnancy 4·4, and in *Trichomonas vaginalis* vaginitis 5·5. The pH reaction of the vaginal contents is not easily altered for any length of time by the application of acids or alkalis. More study is required to elucidate the exact circumstances which control the pH reaction of the vaginal contents.

The Use of Œstrogens in Obstetrics and Gynæcology.

R. I. S. MACPHERSON (*Edinburgh Medical Journal*, June, 1940) reviews the literature concerning the use of œstrogenic hormones in obstetrics and gynæcology. Three points must be borne in mind for successful œstrogenic therapy. First, the substances do not act instantaneously. Maximal action does not occur until twenty-four to forty-eight hours after the injection of aqueous solutions, and until at least three days after the injection of oily solutions. Secondly, prolonged and continuous treatment will result in deleterious local effects not only in the uterus and breasts, but to some extent in the pituitary. Thirdly, the effects are transient, and when œstrin is withdrawn bleeding may be caused. Œstrogenic therapy is discussed in connexion with the treatment of the menopausal syndrome, atrophic vulvitis and lactation, amenorrhœa, dysmenorrhœa and sterility.

Response of the Non-Gravid Human Uterus to Posterior Pituitary Extract.

ARCHIBALD MCLELLAN (*The Lancet*, May 18, 1940) has studied the effect of posterior pituitary extract and its fractions on the movements of the human non-gravid uterus. A water-filled bag was inserted into the uterus, and its changes in volume were recorded. Posterior pituitary extract in a dose of 0·2 to 0·4 unit elicited a contractile response within a minute from the time of injection, followed by incomplete relaxation, which persisted for ten to thirty minutes or even longer. Vasopressin (pitressin) in six out of seven instances gave a similar response. Oxytocin ("Pitocin") caused no contraction of the non-gravid uterus. It cannot be inferred that the gravid uterus reacts similarly. The author states that it is desirable that the response of the uterus to these substances should be measured at various times throughout the course of pregnancy.

Carbohydrate Metabolism during Pregnancy.

E. TONKES (*Monatsschrift für Geburtshülfe und Gynäkologie*, Volume CX, Number 6, 1940) has exhaustively reviewed the metabolism of carbohydrates during pregnancy. As the blood sugar curve after ingestion of glucose in normal pregnancy differs from that in the non-pregnant state, the curve cannot be compared with that of a non-pregnant normal woman. Diabetes in pregnancy is a dangerous complication, and though the maternal mortality rate has been decreased by insulin therapy, the chances for the fœtus have not greatly improved. The pregnant diabetic is likely to show signs of toxæmia, because the carbohydrate metabolism is altered in both conditions. Insulin should always be used in treatment, not only for its effect on the diabetes, but also for its effect on acidosis as well as on water and salt metabolism. The weight of the fœtus is kept within bounds by the maintenance of a low maternal blood sugar level. Labour should be short and anæsthesia should be used only when there is a good balance in carbohydrate metabolism. Because of fœtal indications, Cæsarean section must be considered. An extensive bibliography of recent literature is appended.

Diagnosis of Gynæcological Affections.

J. E. GENDREAU AND O. DUFRESNE (*The Journal of the Canadian Medical Association*, June, 1940) discuss the diagnosis of gynæcological affections by hysterosalpingography. The method is used in sterility, in hæmorrhages the causes of which remain obscure after ordinary pelvic examination, and in the differential diagnosis of pelvic tumours. The authors emphasize that the equation "metrorrhagia = cancer at the menopause" is no longer right, since 70% of cases of metrorrhagia at that time have functional causes. In pelvic tumours it is possible to differentiate fibromyomata from chronic cystic salpingitis or ovarian cysts. The use of hysterosalpingography is most helpful in sterility, as it localizes tubal stenosis and enables the surgeon to proceed on the most conservative lines.

Menstrual Endometrial Biopsy.

LYMAN W. MASON AND WILLIAM C. BLACK (*American Journal of Obstetrics and Gynecology*, June, 1940) present evidence in favour of the performance of endometrial biopsy after menstruation has actually commenced. They discuss the usefulness and indications of the procedure, especially in menstrual disorders and sterility studies. Owing to the normal variation in the onset of each menstrual period they state that it is not known whether an endometrial biopsy taken before menstruation represents the maximal endocrine changes or not. In consideration of this factor they have been performing endometrial biopsies after menstruation has begun. All specimens collected within the first three hours were found to be satisfactory for histological examination. After the lapse of three hours they may be disintegrated. The authors claim that an additional

advantage is that an abortion is not inadvertently performed. All these specimens were collected "in the office" and without anæsthesia.

OBSTETRICS.

The Pathology of Acute Yellow Atrophy and Delayed Chloroform Poisoning.

H. L. SHEEHAN, of the Research Department of the Glasgow Royal Maternity Hospital (*Journal of Obstetrics and Gynæcology of the British Empire*, February, 1940) has investigated true acute yellow atrophy, obstetric acute yellow atrophy, and delayed chloroform poisoning. The pathology of these conditions was studied as well as the clinical conditions caused by them. It would appear that true acute yellow atrophy of the liver is so uncommon in pregnancy that it can be looked on only as a chance complication. Obstetric acute yellow atrophy appears to be a definite entity. Clinically the condition was found to be suggestive of true acute yellow atrophy. The usual course of the disease was as follows. At thirty-six to forty weeks there was a sudden onset of severe vomiting and epigastric pain, followed in a few days by jaundice. These symptoms progressed rapidly, the jaundice became very intense, the vomitus was of coffee-ground appearance, and headache was sometimes present. After seven to twelve days the patient was delivered of a stillborn fœtus, became comatose and died within three days after delivery. At autopsy the liver was yellow and rather small. Microscopic examination revealed identical lesions in all cases. There was a gross fatty change affecting the entire lobule, except a sharply defined rim of normal cells around the portal tracts. The affected cells were bloated by a fine foam of tiny fat vacuoles throughout the cytoplasm, so that they resembled the cells of the suprarenal cortex. The nuclei were normal and there was no necrobiotic change. The author states that the liver lesion shows no histological similarity to true acute yellow atrophy. The fatty change in the liver is quite different, both in the area of the lobule affected and in the appearance of the individual cells, from that sometimes seen in hyperemesis or in vomiting of late pregnancy. Delayed chloroform poisoning is much more common in obstetric cases than in other types. There are three histological types of delayed chloroform poisoning. First, there is the isolated cell lesion affecting more than half the cells of the middle and central zones of the lobule, the periportal zone being less involved. The affected cells are about twice the normal size, spherical, with a clear non-fatty cytoplasm and a tiny pyknotic nucleus. The cause of the lesion is prolonged anæsthesia. Secondly, there is mid-zonal necrosis. This is the commonest type of lesion caused by chloroform in obstetrics. The necrosis involves every liver cell in the affected area. Clinically, the patient is at or near term; starvation acidosis and exhaustion and nitrogen retention are present; all are usually the result of prolonged labour. Sepsis is sometimes an additional factor. Only a short chloroform anæsthetic is then required to produce this mid-zonal necrosis. The third type, central necrosis, is seen in patients with hyperemesis who have died in the puerperium after induction of labour. A pregnant woman in normal health appears to be normally resistant to liver damage by chloroform. When starvation acidosis is present there is great danger of delayed chloroform poisoning.

Heart Disease and Pregnancy.

J. JENSEN, C. WEGNER, E. H. KEYS AND H. R. SMITH (*American Journal of Obstetrics and Gynecology*, March, 1940) record the results obtained at their clinic at Washington University, which was reorganized in 1930 so that all patients who present medical problems are examined by an obstetrician and an internist together. A great many of the conditions are of the cardio-vascular system, and these receive special records. The authors examine their results to see what benefit has occurred, and they find that during the period under review eight patients died within six months of delivery from cardiac disease; only two of these had been regular patients at the clinic. Of the 108 patients, 99 had rheumatic heart disease. Their experience leaves the authors convinced that while some patients should not become pregnant and should have their pregnancies interrupted if they do, the large majority can be carried successfully to term if given adequate prenatal care and if they are delivered without strain.

Rupture of a Branch of the Splenic Artery Associated with Pregnancy.

DOUGLAS MACLEOD AND TIMOTHY MAURICE (*The Lancet*, May 18, 1940) report a case of rupture of the splenic artery, with recovery, occurring during pregnancy. From the literature they collected seven other such cases, all of which ended fatally. The authors' patient was a *primigravida*, aged twenty-two years, almost twenty-eight weeks pregnant and in good health. In a violent fit of laughter she experienced severe pain in the upper part of the abdomen and nausea. Her doctor made a provisional diagnosis of concealed accidental hæmorrhage. In hospital the heart rate was 120 per minute. The uterus was the size of a twenty-eight weeks' pregnancy and fœtal parts could be readily felt. In addition there were the signs of severe intraperitoneal hæmorrhage. At operation a large hæmatoma of the small sac was found. Blood was spurting from one of the vessels near the hilum of the spleen. Splenectomy was performed and the abdomen was closed. Blood and saline solution were repeatedly given intravenously during the next thirty-six hours. After five days labour began, and a macerated fœtus was delivered by forceps thirty-six hours later. A further blood transfusion was given. The patient recovered and within eighteen months had been delivered of a healthy female child after a normal labour. The pathological examination of the spleen suggested that it was possible that besides the enlargement due to pregnancy there was an element of infection.

High Puncture of the Membranes.

THE induction of labour with a Drew-Smyth catheter is dealt with by Gerald Maizels, of Birmingham, in an article entitled "High Puncture of the Membranes" (*The Journal of Obstetrics and Gynæcology of the British Empire*, June, 1940). He quotes a series of 842 cases extending over the last eight years. This large number has been collected by virtue of the fact that the author belongs to a school whose members prefer early induction of labour to a trial of labour in *primigravidæ*. The historical aspect of this method of treatment is summarized, and the particular method used in this investigation is then outlined. An anæsthetic was not administered, but in almost every case a medical induction was attempted within the forty-eight hours preceding the surgical induction. The results are presented in detail, together with a large series of tables. Puncture was undertaken in 342 of the 842 cases under review for disproportion in *primigravidæ*, and a comparison of results is given with those of other medical centres where trial of labour is the method chosen. The author states that the sole advantage of trial labour over puncture of the membranes is that the net fœtal mortality is 0·5% less, but that this is obtained at the mother's expense by a greater number of Cæsarean sections and instrumental deliveries that have to be undertaken. Compared with other methods of surgical induction, it is claimed that high puncture of the membranes gives a lower fœtal mortality rate, a lessened maternal morbidity rate, and that there is no increase in prolapse of the umbilical cord. In the whole series there were seven maternal deaths (0·83%); but six were due to severe toxæmia and chronic nephritis and were in no way connected with induction. The gross fœtal mortality was just under 10%. The latent period between induction and the onset of labour was considerable. In 60% of cases the patients took more than twenty-four hours to come into labour. A repetition of the puncture was necessary in 125 instances (15%), and the morbidity among the patients who needed a second puncture was twice that among those who needed only one treatment. The paper concludes with an emphasis that this series of 842 cases was consecutive and unselected.

Weight Changes in Pregnancy.

IN a series of 2,935 pregnancies, H. J. Stander and J. B. Pastmore (*American Journal of Obstetrics and Gynecology*, June, 1940) have studied weight changes in pregnancy. They point out that the weight changes during normal pregnancy are out of proportion to the weight of the products of conception, which approximately accounts for one-third of the total gain. The excess of weight over this is due to fluid retention, not only in the circulation, but in the tissues. There is a 20% dilution of the blood due to hydræmia. An average weight curve for pregnancy is illustrated in a graph. The average weight increase between the sixth and fortieth weeks of pregnancy is 13·9 kilograms, or 24% of the patient's previous weight. There is no difference between *primiparæ* and *multiparæ* in these weight changes. These investigations show that *primiparæ* as a rule do not return to their original weight after pregnancy. The specific weight changes for any woman during a normal gestation are proportional to her weight when she is not pregnant. Toxæmic patients showed sudden and greater gain in weight than normal patients during the last few months, but the authors particularly stress the fact that lack of a normal weight increase in the first three months is a significant feature of the toxæmias as a group. Patients affected by chronic nephritis showed a subnormal weight increase, the average gain amounting to only 14% of their weight when not pregnant. The same applied to patients with hypertensive disease.

Special Articles on Psychiatry in General Practice.

(Contributed by request.)

XIV.

STATES OF DEGENERATION: SENILE, PRESENILE AND ARTERIOSCLEROTIC DEMENTIA; PICK'S DISEASE; ALZHEIMER'S DISEASE.

If ever a psychiatrist feels a sense of futility and inadequacy it is when he is confronted with one of the dementias. Here is the beginning of the end, the gradual failure of intellectual capacity, a deterioration, moral, physical and mental, and a regression to a state of childish dependence and helplessness.

The one thought from which the relatives may derive some poor consolation is that the patient is unaware of his condition and, in his own way, is fatuously happy and contented.

Senile and Arteriosclerotic Dementia.

The two forms most commonly met with are the senile and the arteriosclerotic mental degenerations. There is little to distinguish them from each other. The characteristic features are a progressive loss of interest, failure of memory, particularly for recent events, faulty orientation for time and place, irritability, fluctuation of attention, and general intellectual deterioration. Carelessness and untidiness of habits are common, and loss of moral sense may bring the patient into conflict with the law. Transitory delusions of persecution, usually directed against members of the family, and hallucinations of various types are found. Restlessness is frequent and the patient often wanders away from home, to be picked up by the police and taken to the reception house, as he is quite unable to give any information about himself. Senile dementia begins about sixty, the arteriosclerotic form about fifty. In the latter, in addition to the symptoms already given, seizures of an epileptic character may occur, and in fact may be the initial symptom. There is possibly a greater tendency in this condition to emotional instability and unreasoning outbursts of anger or even violence. Cerebral vascular catastrophes, with or without localizing signs, may complicate the picture.

The diagnosis of these states from other forms of mental disorder should present little difficulty and is really only of academic interest, as the prognosis is uniformly unfavourable. The age, the very obvious physical and mental impairment of function and, in the case of arteriosclerotic dementia, the presence of changes in other blood vessels than the cerebral vessels, all help to facilitate the diagnosis.

The management of such cases is essentially in the hands of a competent nurse. While the patient is ambulatory, tact and careful handling are necessary to prevent unpleasant scenes, for the stubbornness and irritability of these patients are a source of continual trouble. Care is most required when delusions of persecution manifest themselves. It is then that the patient becomes a menace to the safety of his family, and tragic consequences may result from even a temporary lack of surveillance. When such symptoms arise it is well to advise the supervision and restraint of an institution. The tendency to wander must be guarded against, and the nocturnal restlessness may prove an obstacle to the nursing of such a patient in the home. Later, when the patient is confined to bed, the prevention of bed sores presents a problem, as habits are always faulty and there is resistance to any form of restraint. The general health should be attended to, food must be nourishing and easily masticated, and the danger of injury from falls due to the physical enfeeblement must be borne in mind.

Presenile Dementia and Alzheimer's Disease.

Two other conditions which have certain features in common are presbyophrenia or presenile dementia and Alzheimer's disease. They cannot be differentiated symptomatically except for the presence of certain focal signs in the latter. They are in many respects similar to Korsakoff's psychosis, and exhibit a defect of retention with a tendency to confabulation or false memories. Such patients are restless in an aimless and purposeless fashion, never really achieving their aim; they talk at random, discuss with considerable conviction events which have never taken place, and show considerable impairment of memory and orientation. The patient, with an appearance of intense activity and earnestness of purpose, will cheerfully destroy anything he can lay his hands on. These patients are talkative individuals with an apparent alertness, but when addressed are found to be quite out of touch with their environment. Some authorities believe that presbyophrenia is an early stage of Alzheimer's disease; but it is customary to separate the two because of the rather characteristic cortical changes in the latter. These consist of tangled thread-like structures occupying much or all of the body of many cortical ganglion cells. Nerve cell atrophy, neuroglia proliferation and plaque formation also occur to a small extent. Focal necroses are common. A fairly frequent feature of this condition is the deterioration of writing before speech is markedly affected. Paraphasia, aphasia, iterative repetition and logoclonia may occur. Both these deteriorations occur during the presenile period, and cases of Alzheimer's disease have been reported to have appeared in persons as young as thirty-three years of age. The majority of cases have run a rapid and uninterrupted course with early and serious dementia.

The differentiation between the two states is difficult. Disturbances of speech are more common in Alzheimer's disease, and confabulation in presbyophrenia. Apart from this there is little to distinguish them. The similarity to Korsakoff's syndrome has already been mentioned; but the history of alcoholism, the neuritic changes, the altered reflexes and paræsthesiæ should serve to make the diagnosis obvious. The age and the absence of aphasia and other apoplectic accidents help to separate these presenile dementias from the senile and arteriosclerotic forms.

The treatment is similar to that outlined for the other states of degeneration. Care and nursing attention are all that is required. It must be remembered that the deterioration is much more rapid in these cases and the patient becomes bedridden very early and accordingly requires more skilful nursing.

Pick's Disease.

Pick's disease is an uncommon condition which presents certain interesting features. It also belongs to the group of presenile dementias. There is cortical atrophy, which is relatively diffuse; but there are circumscribed, localized, bilateral areas, particularly in the frontal and temporal lobes, in which this atrophy is very apparent. The clinical manifestations are, of course, the result of a combination of the diffuse and focal processes. Females are said to be more often affected than males, and the majority of cases occur in persons between the ages of forty and sixty. The cortical atrophy may be so great that the brain weighs only 1,000 grammes (the normal brain weighs about 1,340 grammes). Microscopically the changes are degenerative and not inflammatory. There are chromatolysis of the nerve cells, loss of ganglion cells and hypertrophy of the neuroglia. Senile plaques and intraneural fibrils are absent, and arteriosclerosis plays no part in the causation. The ætiology of this condition is obscure.

The progress of the disease is rapid, and dementia is usually well established within a year. Initiative is lost, mental productivity is reduced, attention suffers and the patient becomes taciturn and indifferent. Memory remains relatively unaffected until late in the course of the dementia. Euphoria and foolish punning are not uncommon. A restless, purposeless, stereotyped activity is frequently found. Various aphasic manifestations with alexia, agraphia and even echolalia may be present. A characteristic of these is their gradual onset, which serves to distinguish them from those of vascular origin. All reflexes are unchanged.

As the condition progresses the patient becomes asthenic, confined to bed and scarcely moves. Dementia becomes extreme, sphincter incontinence develops, the capacity for speech practically disappears, and cachexia becomes marked.

The diagnosis from other degenerations is not easy, but the gradual onset of dysphasia, the retention of memory until the condition is well advanced, and the findings in encephalography, which reveal enlargement of the ventricles and collections of air limited to the frontal and temporal regions, may be of assistance. The condition with which it is most likely to be confused is Alzheimer's disease; but an hereditary tendency seems to occur in the former.

The treatment is that of dementias in general. Because these patients are much more amenable than those with the senile forms, management at home or in an ordinary hospital can usually be satisfactorily carried out.

The prognosis in all the states of degeneration is uniformly unfavourable, a fatal termination being reached in from three to twelve years.

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British Medical Association News.

MEETING OF THE FEDERAL COUNCIL.

A meeting of the Federal Council of the British Medical Association in Australia was held at British Medical Association House, 135, Macquarie Street, Sydney, on September 3 and 4, 1940, Sir Henry Newland, the President, in the chair.

Representatives.

The following representatives of the Branches were present:

New South Wales: Dr. George Bell, O.B.E., and Dr. W. F. Simmons.
Queensland: Dr. D. Gifford Croll, C.B.E., and Dr. T. A. Price.
South Australia: Sir Henry Newland, C.B.E., D.S.O., and Dr. A. F. Stokes.
Tasmania: Dr. W. E. L. H. Crowther, D.S.O., and Dr. S. Gibson, M.C.
Victoria: Dr. F. L. Davies and Dr. H. C. Colville.
Western Australia: Dr. F. W. Carter and Dr. N. M. Cuthbert, M.C. (in place of Dr. L. E. Le Souef).

Minutes.

The minutes of the previous meeting of the Federal Council of February 29 and March 1, 1940, which had been circulated among members, were taken as read and signed as correct.

Annual Report of the Federal Council.

The annual report of the Federal Council for the year ended June 30, 1940, was received and adopted.

Finance.

The financial statement as at June 30, 1940, was presented. The statement included the Federal Council account and the Australasian Medical Congress (British Medical Association) fund account. The statement was received.

Leave of Absence to Dr. L. E. Le Souef.

A letter was received from the Western Australian Branch stating that leave of absence had been granted to Dr. L. E. Le Souef, President of the Branch and its representative on the Federal Council, because he had gone on active service.

A Complaint against Australia House.

A letter was received from Mr. N. Bishop Harman, of London, laying a complaint against Australia House, London, because it had refused to divulge the address of a patient who had failed to pay a fee. It was pointed out that the authorities at Australia House had offered to forward any correspondence addressed to the person in question, but that they had no power to divulge an address. It was resolved that a letter should be written to Mr. Bishop Harman regretting that the Federal Council was unable to take any action.

Australian Aerial Medical Services.

A letter was received from the Australian Aerial Medical Services requesting the Federal Council to cooperate in an effort to maintain the services during the war. It was pointed out that some difficulty was being experienced in obtaining medical officers for the aerial medical services, and the Federal Council agreed to do everything in its power to assist. It was resolved that the communication should be forwarded to the Federal Council's representatives on the Central Coordination Committee.

The Importation of Aluminium Chloride.

A request was received from a commercial house asking for the support of the Association in an endeavour to secure the importation of aluminium chloride in sufficient quantities to allow of the manufacture of aluminium hydroxide. In discussion it was pointed out that the Federal Council could not comply with the request, since this would imply that it had undertaken an investigation into the use of aluminium hydroxide.

The Hours of Work of Air Force Trainees.

Attention was drawn by the Queensland Branch to an official broadcast in which it had recently been stated that air force trainees worked for sixteen hours a day and enjoyed it. The Queensland Branch was concerned with the danger that might result from fatigue and staleness. Dr. Price pointed out that the broadcast in question was a report by an official air observer. He said that some time previously the medical officer at one air force training centre in Queensland had had to intervene to secure rest for trainees. In the broadcast the conditions described had been those obtaining at a centre in New South Wales. After discussion it was resolved that Air Commodore Hurley should be asked for a ruling on the hours of work for air force trainees.

On the motion of Dr. George Bell it was resolved that the Victorian representatives should discuss the matter personally with Air Commodore Hurley. It was pointed out that the Victorian representatives had been appointed a committee to act as a liaison between the authorities of the defence services and the Federal Council.

Dr. H. C. Colville asked that the powers of the committee should be defined. The question at issue dealt with personnel of armed services only.

On the motion of Dr. S. Gibson it was resolved that the scope of the committee should be extended so that it might deal with any matters concerned with personnel of the armed services that were referred to the Federal Council, and it was also determined that the several Branch councils should be notified of this arrangement.

Dr. N. M. Cuthbert thought that the matter might be referred to the National Health and Medical Research Council, for he pointed out that the council had funds to carry out investigations into industrial fatigue. It was resolved that the attention of the Federal Council representative on the National Health and Medical Research Council should be drawn to the question of fatigue as it affected all persons employed in defence services.

Transfer of Members from One Branch to Another.

A letter was read from the New South Wales Branch, asking for a ruling in regard to the transfer of members from one Branch to another. It was pointed out that some Branches adopted the custom of not transferring a member to another Branch when he moved into the area of that Branch until he first paid his subscription to the original Branch.

It was decided to point out to the Branches that, in accordance with the constitution of the British Medical Association, a member was *ipso facto* a member of the Branch in whose area he resided, and therefore his membership should be transferred automatically when he moved into the area of another Branch.

It was also decided to inform the Branches that, in accordance with a previous resolution of the Council, the Branch in whose area the member resided at the commencement of the year should retain the whole of the subscription for that year.

Physical Fitness.

A letter was received from the Queensland Branch forwarding a request from some of its members that the National Health and Medical Research Council should be asked to invite an expert in physical education in America to visit Australia. In discussion it was pointed out that several of the States already had experts who were undertaking the teaching of physical education, and it was resolved that Dr. F. L. Davies and Dr. H. C. Colville should obtain an opinion from the director of physical education at the University of Melbourne as to whether a useful purpose would be served by the adoption of the Queensland Branch's recommendation.

"Evacuees" from Hong-Kong.

The Victorian Branch drew the attention of the Federal Council to the fact that no provision had been made for the medical care of the women and children who had been transferred to Australia from Hong-Kong by the military authorities. It was pointed out that very many of these people were suffering from illness. Some of them had no means at all, and no arrangements had been made for their medical attention. In Hong-Kong many of them, being dependants of members of the naval and military forces, received medical services from the full-time naval or army medical officers. On their arrival in Australia there was no one in authority who was prepared to be responsible for their medical care. These persons were the responsibility of the naval or military authorities, and it was not fair that they should be made a charge on the charity of the medical profession in Australia. It was resolved that an urgent request should be sent to the Minister of the Interior, asking him to see that some plans were made for medical attendance on persons who had been transferred by the military authorities.

Radiology and the Defence Department.

A communication was received from the Director-General of Medical Services in reference to the amounts charged by

radiologists for their services. It was pointed out that one radiologist's bill came to £1,200, which, in relation to time, worked out at about £200 a week. When it was pointed out that no information was available as to what work had actually been done, it was resolved that a request should be made for the supply of details.

Medical Officers' Relief Fund (Federal).

Dr. George Bell, on behalf of the trustees of the Medical Officers' Relief Fund (Federal), presented the balance sheet and report for the year ended June 30, 1940. The balance sheet and report were adopted. It was pointed out that the fund was inaugurated in 1919 and that 419 persons contributed upwards of £12,128. Loans of varying amounts, totalling in all £22,052, had been made to forty-six persons. The sum of £17,285 had been repaid to the trustees, and £2,717 had been written off as "bad". The balance still owing on twelve loans amounted to £3,048. During the existence of the fund twenty-eight persons had been assisted by gifts amounting in all to £7,329. At June 30, 1940, the assets on the balance sheet stood at £10,049.

Correspondence was read from the Queensland and Victorian Branches. The Queensland Branch wished to see a medical officers' relief fund established in connexion with the present war, and the Victorian Branch wished to know whether it was possible to apply the old fund to the present conflict. After the Council had resolved to consider the inauguration of a returned medical officers' relief fund, Dr. George Bell read the objects of the existing fund. The General Secretary said that legal advice had been obtained and the old fund could not be used in connexion with the present war. He added that in any case it was more than likely that there were still many who would require help from it. The suggestion was made that if a new fund was inaugurated it should be known as the "Medical War Fund", so that there would be no confusion. After discussion it was resolved, on the motion of Dr. George Bell, seconded by Dr. W. F. Simmons, that consideration should be deferred until the next meeting.

The Australasian Medical Publishing Company, Limited, and the Supply of "The Medical Journal of Australia" to Members.

The ordinary proceedings of the Federal Council were interrupted at this stage and a conference was held between the Council and the Directors of the Australasian Medical Publishing Company, Limited. The Directors who attended were: Dr. T. W. Lipscomb (chairman), Dr. A. M. Davidson, Dr. J. P. Major and Dr. Gregory Sprott. Sir Henry Newland and Dr. D. Gifford Croll, members of the Federal Council, are also directors of the Australasian Medical Publishing Company, Limited.

This conference was the result of a discussion held at the last meeting of the Federal Council, when the view was expressed by the Victorian Branch that the taking of The Medical Journal of Australia by members on active service overseas should be optional. The end result of the discussion at that meeting was the acceptance of a motion by Dr. D. G. Croll to the effect that the Australasian Medical Publishing Company, Limited, should be asked whether it would make any concession to members on active service. On being invited by the President, Dr. T. W. Lipscomb gave a short outline of the formation of the Australasian Medical Publishing Company, Limited, and explained the arrangement that had been made with the Branches for the supply of the journal. Dr. Lipscomb pointed out that there was no legal agreement between the Company and the Branches. At the same time he quoted the articles of association of the company, which had been signed by members of the several Branches for and on behalf of those Branches. He said that there was no doubt that the arrangement provided for the supply of The Medical Journal of Australia to every member of the British Medical Association in the Commonwealth. Ever since the establishment of the journal in 1914 the sum of one pound had been paid every year in respect of every Branch member. Dr. Lipscomb then referred to a letter which had been sent to the Federal Council for its meeting that day from the directors of the company, who had met on the previous afternoon. In this letter it was stated that the directors of the Australasian Medical Publishing Company, Limited, were of the unanimous opinion that every endeavour should be made to lighten the burden of members serving overseas. They had therefore decided that for the year ending December 31, 1940, a rebate of 10s. for each member on active service overseas should be made to the several Branches and that the matter should be reviewed again in the following year. The directors also expressed the opinion that The Medical Journal of Australia was an essential part of the life of the medical profession in Australia. Members serving overseas were still members of the medical profession of the Commonwealth, and for this reason should continue to have their journals sent to them. Dr. Lipscomb said he understood that it was desired that the journal should be issued as the organ of the Branches in Australia. He pointed out that the journal was originally published as the organ of the Branches, but that this had been discontinued. He would, however, discuss the matter with his fellow directors. Finally, Dr. Lipscomb read the last paragraph of the letter to the Federal Council. In this paragraph it was stated that in order that the supply of and the payment for the journal should be uniform amongst the Branches, the directors asked the Federal Council to adopt a resolution stating that the *per capita* payment for the journal should be as at present, namely, £1 *per annum*, subject to any rebate made to the Branches by the company in regard to members on active service overseas.

Sir Henry Newland said that he had no doubt that those who signed the articles of association of the Company acted on behalf of the Branches to which they belonged. He had started the agitation in South Australia for the establishment of one journal for the Commonwealth, and he referred to the efforts of the late Richard Stawell and John Corbin for the attainment of this object.

Dr. H. C. Colville said that he assumed that the conference was the result of the request that had been made by the Victorian Branch that the Federal Council should consider the matter. He was quite in agreement with all that Dr. Lipscomb had said in regard to the history of the Company. There was no evidence of any legal agreement to supply The Medical Journal of Australia to members of the several Australian Branches, and Dr. Colville thought that someone was at fault in 1913 that no agreement had been drawn up. The matter had been brought to a head by a difference of opinion which was quite simple. On the one hand the Australasian Medical Publishing Company said that it had to supply the journal to members, and on the other hand the Victorian Branch Council wished to give certain relief to its members who were on active service. Many of those members did not wish to receive the journal, and the Victorian Branch Council thought that it was legitimate that they should be relieved of the necessity of buying it. There was no water-tight legal basis on which one State must accept a decision. Dr. Colville thought that some form of agreement should be drawn up in place of the loose arrangement that was at present in existence.

Dr. A. M. Davidson spoke on the importance of sending the journal to every member of the Australian Branches, whether they were resident in Australia or had gone on active service overseas.

At this stage the conference terminated and the directors retired from the meeting. The correspondence to the Federal Council was then read. In the discussion that followed, three subjects received particular mention—the control of the journal, the financial future of the company, and the supply of information to the Branches. It was pointed out that the control of the journal was in the hands of the directors of the company, who were appointed by the members of the several Branches. In regard to the financial future of the company, it was stated that the directors intended, when profits were sufficiently large, to make a *per capita* financial distribution among the several Branches. This would be done because the company was virtually the property of the Branches. In regard to the supplying of more information to the Branches, it was suggested that the Australasian Medical Publishing Company, Limited, should supply the Branches with a copy of the annual financial statement.

Dr. H. C. Colville said that he wished to make it quite clear that the Victorian Branch had no intention whatever of avoiding its obligations to the company. The present arrangement, however, was unsatisfactory, and something better should be substituted.

Dr. D. G. Croll pointed out that the value of the pound was much less now than in 1914, when the journal was started, that the journal was bigger and better than at its establishment, and that the Branches might regard the present *per capita* payment as good business in relation to the value received.

On the motion of Dr. George Bell, seconded by Dr. H. C. Colville, it was resolved:

> That the directors, Australasian Medical Publishing Company, Limited, be requested to supply the Branches with a copy of the annual financial statement.

On the motion of Dr. T. A. Price, seconded by Dr. H. C. Colville, it was resolved:

> That it be a recommendation to the Branches that the Federal Council make a legal agreement with the Australasian Medical Publishing Company, Limited, so that each member shall receive The Medical Journal of Australia.

On the motion of Dr. W. F. Simmons, seconded by Dr. N. M. Cuthbert, it was further resolved:

> That the Australasian Medical Publishing Company, Limited, be thanked for its generous offer of a rebate of ten shillings for the year ending December 31, 1940, in respect of each member proceeding overseas on active service; and that the *per capita* payment for the journal should be as at present, that is, one pound *per annum*, subject to any rebate to the various Branches by the Australasian Medical Publishing Company, Limited, in respect of members proceeding overseas on active service.

The National Health and Medical Research Council.

Correspondence was read between Dr. J. Newman Morris, the Federal Council's representative on the National Health and Medical Research Council, and the President, in regard to a subject for discussion by the National Health and Medical Research Council. The President had suggested that chronic rheumatic conditions might be discussed by the National Health and Medical Research Council.

The report of the eighth session of the National Health and Medical Research Council was received.

List of Drug Synonyms and Trade Names.

At the last meeting of the Federal Council it was resolved that the Federal Council should ask the Branches to distribute amongst their members copies of a list of drug synonyms and trade names which was being drawn up by the drug subcommittee of the Australian Association of Scientific Workers. The Secretary reported that copies of the list had been sent to the Branches for distribution.

"Who's Who in Australia."

A letter was read from the publishers of "Who's Who in Australia", addressed to the President, and asking for the names of the members of the Federal Council for inclusion in the volume. The President's action in asking the General Secretary to furnish the names was approved.

The Press Publicity Committee on National Health Insurance.

A letter was read from the Victorian Branch on the question of the control of national health insurance. The views expressed were noted and a reference was made to the fact that publicity in connexion with national health insurance was still to be undertaken on behalf of the Federal Council by its Press Publicity Committee. The term of appointment of the committee having expired, Dr. George Bell and Dr. W. F. Simmons were reappointed as its members.

The Contract Practice Committee.

The Secretary reported that the following nominations had been received from the Branches for membership of the Contract Practice Committee for 1940-1941: *New South Wales*: Dr. H. R. R. Grieve; *Queensland*: Dr. T. A. Price; *South Australia*: Dr. R. J. Verco; *Tasmania*: Dr. J. R. Robertson; *Victoria*: Dr. C. H. Dickson; *Western Australia*: Dr. M. K. Moss. These members had been appointed as members of the committee. It was noted that its term of office would expire on November 18, 1940, and it was resolved that the period of appointment should be extended until the next meeting of the Council.

Friendly Society Contract Practice.

The General Secretary reported that a conference regarding the model common form of agreement had taken place between the Contract Practice Committee of the Federal Council and the Consultative Committee of the friendly societies of Australia on June 14, 1940. At this conference the following resolutions were adopted:

> (*a*) That it be a recommendation to the Branches that the model common form of agreement, as amended at the meeting of the Contract Practice Committee with the Consultative Committee of the friendly societies of Australia on June 14, 1940, be adopted.
>
> (*b*) That the proposal of the friendly societies in regard to lodge members who have enlisted be approved, namely, that names of single members with no dependants be removed from the medical officer's list, but that they be entitled to resume membership on their return to civil life, and that the names of single members with dependants and married members be retained on the medical officer's list.
>
> (*c*) That, subject to a satisfactory agreement being reached between the Victorian Branch and the Victorian friendly societies, the Branches be asked to consider making a reduction in the rates for care of dependants of friendly society members proceeding on active service.

It was resolved, on the motion of Dr. George Bell, seconded by Dr. F. L. Davies, that these resolutions should be approved.

Dr. H. C. Colville reported that a meeting would shortly take place between the Victorian Branch Council and the representatives of the Victorian friendly societies regarding the capitation fee.

Uniform Medical Registration.

A letter was read from the President regarding a conference of the deans of the faculties of medicine in the several Australian universities, which had taken place in Melbourne on April 18, 1940. It was noted that the deans had declared that the lack of uniformity in registration requirements in the several States seriously affected the universities, which were necessarily jealous of the status of their degrees throughout the Commonwealth.

Alien Medical Practitioners.

Further reference was made to the registration of alien medical practitioners, and some correspondence with the Chief Secretary of South Australia and the Commonwealth Minister for the Interior was read. The Minister, referring to statements made in a letter of September 19, 1939, that no refugee doctors were coming to Australia at that time, said the position now was that for a period of at least twelve months prior to that date no landing permits were granted in favour of refugee doctors, except when the applicants possessed qualifications entitling them to practise or when they wished to enter the Commonwealth for purposes other than medical practice.

Dr. A. F. Stokes said that the South Australian Branch had discussed with the Chief Secretary of South Australia the registration of alien practitioners with Italian qualifications which entitled them to registration because of a reciprocal agreement. The General Secretary suggested that the General Medical Council of Great Britain should be asked whether the agreement between England and Italy had been annulled.

Dr. F. L. Davies thought that annulment of the agreement should be suggested to Great Britain if this had not already been done.

It was therefore resolved that the General Medical Council should be approached, and that if it had not already done so, it should be urged to recommend the annulment of the reciprocal agreement between England and Italy.

Further reference was made to the transfer of a member to a Branch when he was ineligible for registration in the area of that Branch. Correspondence with the Secretary of the Parent Body was read, and the General Secretary pointed out that such members would have to be accepted by the Branch to which they were transferred, whether they were eligible for registration or not.

Reference was made to inquiries by the Queensland Branch regarding the expulsion from membership of enemy aliens. The Queensland Branch had wished to know whether it had power (*a*) to expel enemy aliens and (*b*) to expel members who had been interned as enemy aliens. Counsel's opinion was that membership of the Association could be terminated by expulsion only when the member had done something which was detrimental to the interests and honour of the profession as defined in the rules of membership. The mere fact that a member was an enemy alien could not prevent him from continuing as a member. He was entitled to remain a member unless he brought himself into conflict with the articles of association. In other words, the Branch had no power to expel enemy aliens from membership. The General Secretary stated that this opinion had been sent to the Parent Body, and it was resolved that when a reply had been received from the General Secretary of the Association a copy of the correspondence should be forwarded to each Branch.

Military Camp Hygiene.

Further reference was made to the inspection of military camps, which had been discussed at the previous meeting of the Federal Council, and it was reported that the following had been appointed to report to the Deputy Director of Medical Services on camp hygiene: *New South Wales*: Professor H. Sutton; *Queensland*: Dr. G. P. Dixon; *South Australia*: Professor J. B. Cleland; *Tasmania*: Dr. B. M. Carruthers; *Victoria*: Dr. John Dale; *Western Australia*: Dr. L. A. Hayward.

The Conditions of Service Committee.

It was noted that Dr. C. H. Dickson had been coopted as a member of the Conditions of Service Committee. It was resolved that the thanks of the Council should be extended to the committee, and that Dr. H. C. Colville and Dr. F. L. Davies should be reappointed as members of the committee with powers of cooption.

The Enlistment of Medical Officers.

Dr. F. L. Davies reported that he had written to the Director-General of Medical Services, Major-General R. M. Downes, asking that the requirements of the medical services should be sent to THE MEDICAL JOURNAL OF AUSTRALIA for publication. He also suggested that when a medical officer volunteered for service his application should be acknowledged and that he should be examined forthwith in regard to his physical fitness. He also thought that the practitioner should be advised when his services were likely to be required. Dr. Davies thought that if this suggestion was carried out, more medical men were likely to offer for service. Dr. Davies said that he had received a reply from the Director-General stating that details of appointments available in the Sixth Division had been published in THE MEDICAL JOURNAL OF AUSTRALIA. He did not think it was practicable to tell volunteers for service when they would be likely to be required. The Director-General also pointed out that the submission of forms for completion by a medical officer who volunteered for service was in itself an acknowledgement of his offer. The Director-General further stated that the selection of personnel for the units was often an extremely difficult matter, in spite of the applications that had been received. It was resolved, on the motion of Dr. H. C. Colville, seconded by Dr. George Bell, that representations should be made to the Director-General of Medical Services that medical men who offered their services to the military authorities should be given an opportunity of being examined at once by a medical board in regard to their fitness.

The Payment of Medical Officers for the Examination of Recruits.

The Queensland Branch raised the question of the payment of medical officers who examined recruits. It was held that the payment of rank was inadequate and that a sum of two guineas a morning should be paid, or three shillings *per capita*. It was resolved that no action should be taken.

Conditions of Service—Medical Officers of the Army and Royal Australian Air Force.

The attention of the Minister for Defence Coordination was directed to what were regarded as anomalies in the condition of service of medical officers of the Army and Royal Australian Air Force. It was pointed out that if they were in camp or on Royal Australian Air Force station, these officers were provided with quarters and rations; but if they were employed elsewhere, they were allowed the quite inadequate sum of 2s. 5d. *per diem* in lieu of rations and quarters, and, in addition, had to meet the cost of transport from their residences to their places of employment. The result was that after board and lodging were paid for, what might be called the effective pay of an officer employed elsewhere than in camp or in Royal Australian Air Force stations was much less than the pay of the rank. The Minister in reply stated that the amount of 2s. 5d. per day was a uniform rate payable to all ranks when quarters and rations were not provided, and that, having regard to the conditions of service of officers and other ranks in camp in Australia and on active service overseas, it was considered that the additional payment of a sustenance allowance of 2s. 5d. per day to personnel who were able to live at home was in the circumstances fair and reasonable.

Naval Medical Officers.

Some correspondence was read between the Minister for the Navy and the Conditions of Service Committee regarding the disabilities of reserve medical officers serving in the Royal Australian Navy. This correspondence dealt with the question of seniority, promotion and payment for special services. The replies were unsatisfactory, and it was resolved that no further action should be taken.

The Enlistment of Queensland Medical Graduates for Active Service.

The General Secretary reported that a letter had been received from the Queensland Branch, suggesting either that the provision that graduates should do one year's hospital work before they were entitled to registration should be deleted in regard to those new graduates who wished to enlist for active service, or else that the period of service in the army should be allowed to count as a year's hospital service as required by the Queensland *Medical Act*. It was pointed out that deletion of the provision would require an alteration in the act, but that if the alternative suggestion were adopted, what was needed could be effected by means of a regulation. The General Secretary reported that a letter had been written to the Minister of the Army, asking him whether the suggestion of the Queensland Branch could be carried out. The Minister had replied that the matter had been referred to the Central Coordination Committee.

Medical Appointments in the Australian Imperial Force.

A letter was received from the Queensland Branch suggesting that a more equitable distribution of appointments in the Army Medical Corps of the Australian Imperial Force should be made from the point of view of the several States. Recently applications had been invited for 113 Army Medical Corps officers. Three captains had been appointed from Queensland. Later this had been increased to five captains, and subsequently to four captains and one major. In all, two lieutenant-colonels, nine majors and twenty captains had been appointed from Queensland to the Army Medical Corps in the Australian Imperial Force. Queensland thought that use should be made of medical officers from that State equally with the other States.

Dr. George Bell said that he thought that the whole arrangement was a Federal matter, that the most suitable persons available should be chosen, and that the adoption of a State basis was entirely wrong.

In the discussion that followed, it was stated that distance from headquarters appeared to be an important factor in the matter of appointments. It was eventually decided, on the motion of Dr. D. G. Croll, seconded by Dr. W. F. Simmons:

> That representations be made to the Director-General of Medical Services urging that the system of allocation and appointment of medical officers used in the last war be adopted for the present war, and that serious consideration be given to the recommendations of the Deputy Director of Medical Services of the various States in regard to such appointments.

The Treatment of the Militia in Public Hospitals.

A letter was read from the New South Wales Branch in regard to the payment of medical officers for the treatment of members of the militia who were admitted to public hospitals. It was pointed out that members of the honorary staffs of the hospitals would have to attend many patients in the country who were admitted to hospital from the various camps. There was no suggestion that medical officers should receive private fees for the treatment of these soldiers; but it was thought that some recognition should be made, even if it was on the basis of a temporary commission in the Commonwealth Military Forces. It was resolved, on the motion of Dr. George Bell, seconded by Dr. W. F. Simmons, that representations should be made to the Director-General of Medical Services requesting that members of the honorary medical staffs of public hospitals be paid for their services to members of the Commonwealth defence forces sent from camps to public hospitals for treatment.

A Medical Library for Australian Medical Corps Officers in England.

The General Secretary reported that a cable had been received from Colonel Fraser, Assistant Director of Medical Services in England, asking whether funds were available for the establishment of a medical library for the use of Australian Army Medical Corps officers in England. The General Secretary had replied to Colonel Fraser that no funds were available, but it was pointed out that members of the Australian Imperial Force who were members of the British Medical Association had access to the library of the Association at British Medical Association House, Tavistock Square, London. The Secretary's action was approved.

The Coordination of Medical Services.

The report of the Federal Council's representatives on the Central Coordination Committee was read and received. This report reminded the members of the Federal Council of what were the functions of the Central Coordination Committee. The report went on to state that a secret report was drawn up after each meeting, and recommendations had from time to time been sent to the Minister. The Defence Committee over which the Minister for Defence presided considered such recommendations and furnished a reply to

them. The report of the representatives also stated that the Defence Committee had endorsed the recommendation of the Central Committee that the survey by the British Medical Association of the medical services be officially recognized as providing a valuable source of information auxiliary to the official military survey, in the following terms:

> The Defence Committee noted that the survey is being undertaken voluntarily by the British Medical Association, which will present the results of such survey to the Government. In these circumstances, and as the *questionnaire* will be of value in supplementing the previous official survey, the committee endorses the recommendation.

The Federal Council had also before it a resolution of the Victorian Branch, to the effect that the Federal Council should make every effort to see that the representation of the several Branches on the State medical coordination committees should be retained as under the original arrangements. An announcement had been made that it was intended to reduce the membership of the Association in each State from two to one. It was pointed out that the members of the Association had more intimate knowledge of medical practitioners and of the conditions of practice than any of the other members of the coordination committees, and several members of the Federal Council were insistent that the efficiency of the coordination committees would be impaired if the original arrangement was altered. It was therefore resolved, in the first place, that the Minister for Defence Coordination should be asked to try to arrange that the representation of the British Medical Association on State coordination committees should remain at two members, and in the second place, that the attention of the Central Coordination Committee should be directed to the question of naval representation.

Army Medical Services Administration.

The General Secretary stated that the President had received a letter from the Director-General of Medical Services, in which the Director-General wrote that two members of the Association had approached the Prime Minister personally and had informed him that the medical profession in Australia was "seething with discontent" regarding the administration of the Australian army medical services. The Prime Minister had asked the Director-General to obtain from the Federal Council an opinion regarding this statement. At the same time the Federal Council had before it a letter from Professor W. K. Inglis, President of the New South Wales Branch, in which he expressed some concern *inter alia* regarding the effectiveness of the coordination committees. The General Secretary said that at the suggestion of the President of the Federal Council, Sir Henry Newland, he had asked the members before they came to the meeting to inquire in their respective States whether there were any serious complaints. A general discussion took place in which members referred to some matters which had given rise to a certain amount of dissatisfaction.

Dr. H. C. Colville then submitted a memorandum which he thought might be considered as a basis for a reply to the Prime Minister. The Council accepted this view and discussed Dr. Colville's memorandum. In the first place it was pointed out that the persons who had made a verbal complaint to the Prime Minister had no authority at all to speak on behalf of the medical profession in Australia. The only body which could speak for the Australian medical profession was the Federal Council, and the Council had appointed a committee consisting of Dr. F. L. Davies and Dr. H. C. Colville, who had powers of cooption and of dealing with all matters concerned with army medical services as they arose. This committee had been in existence for six months. The committee had dealt with many matters concerning the army medical services which had been referred to it, and had been in close communication with the Director-General of Medical Services on matters over which complaints had arisen. Broadly speaking, the committee had considered that the actual working organization of the army medical services as exemplified in such matters as the care of the sick in camps, the provision of equipment *et cetera*, was outside its scope. It had addressed itself mainly to the following matters: (*a*) the interests of the medical officers in the army medical services; (*b*) the interests of members of the medical profession who wished to engage in military service; (*c*) the interests of the civilian members of the medical profession and of the civilian population, in so far as they were affected by the demands of the army medical services. The memorandum concluded with four recommendations which were adopted by the Federal Council. The Council believed that if these recommendations were adopted, many causes for complaint would be removed.

The Council held that the Director-General of Medical Services should be a member of the Military Board. The present position of the Director-General was anomalous. Since he was not a member of the Military Board, any of his recommendations had to be sent through the Adjutant-General, who transmitted them to the Military Board. In practice, recommendations were sent out from the Military Board to the deputy directors of medical services—in other words, from a board on which the Director-General had no seat. The Federal Council held that if the Director-General was a member of the Military Board, there would be an increase in efficiency and much time would be saved in the initiation of important matters of army medical policy. This in turn would improve the working conditions of medical officers.

The second recommendation was to the effect that medical men who wished to offer their services to the military authorities should be given an opportunity of being examined at once by a medical board to determine their fitness or otherwise. If they were passed as fit, they should be informed of the fact without delay and should also be told when their services were likely to be required.

The third recommendation stated that the correlation of the defence and civilian medical requirements should be dealt with by the various coordination committees more effectively than at present. The coordination committees should meet at regular intervals, for it appeared that certain State coordination committees had been much more active than others. In the absence of any statutory powers vested in the coordination committees, they should at least be assured that the recommendations would be seriously considered by the military authorities.

The fourth recommendation was in the following terms:

> While the Federal Council is unaware of any "seething discontent" in the medical profession, it is aware, in common with other sections of the community, of many deficiencies in the accommodation, equipment *et cetera* available for the health services of the armed forces, and urges that efforts be made to improve them.

It was resolved that the memorandum with the recommendations should be forwarded to the Director-General of Medical Services for transmission to the Prime Minister.

On consideration of the letter sent by Professor Inglis, it was resolved that he should be invited to meet the Federal Council.

Professor Inglis accepted the invitation of the Council and pointed out that while some of the remarks in his letter had been made possibly without full appreciation of the facts, he still had some doubt as to whether everything was being done as effectively as possible in regard to the medical services. He thought that the State coordination committees were not so effective as they might be. This, he thought, was due in no small degree to the fact that they did not receive enough encouragement, and also to the fact that they had no executive powers. He was still of the opinion that if it could have been adopted at the right time a system might have been established in Australia similar to that in vogue in England, in which the British Medical Association played an active part. Professor Inglis said that the decisions of the coordination committees should be put into practice and not into pigeonholes. In order to show what could be done, he instanced a survey that had been carried out by the Section of Pathology and Bacteriology of the New South Wales Branch of the British Medical Association. Professor Inglis said that he thought that the Federal Council should let the medical profession know what it was doing. After Professor Inglis had retired a further discussion took place, and it was resolved, on the motion of Dr. George Bell, seconded by Dr. N. M. Cuthbert, that representations should be made to the Director-General of Medical Services, requesting the committees for the coordination of medical services forthwith to deal more fully with the coordination of the medical services, both civil and defence.

It was also resolved, on the motion of Dr. George Bell, seconded by Dr. W. F. Simmons, that Professor W. K. Inglis should be thanked for his letter and that he should be informed that representations were being made to the Director-General of Medical Services requesting that the various committees for the coordination of medical services should forthwith deal more fully with the coordination of the medical services, both civil and defence.

The Abolition of Locum Tenens Allowance to Members of the Militia.

Further reference was made to the fact that *locum tenens* allowance was no longer paid to medical practitioners serving with the militia. The subcommittee reported that it was not prepared to take any action pending further considera-

tion by the Council. It had been expected that a reply would be received from the Prime Minister, but none had been forthcoming. No further action was taken.

The Work of the Conditions of Service Committee.

At this stage reference was made to the work of the Conditions of Service Committee, and the members of the Federal Council expressed their appreciation of the large amount of work that had been undertaken.

Petrol Rationing.

The General Secretary reported that he had communicated with the several Branches and had obtained by means of a *questionnaire* certain statistics regarding the use of petrol by medical practitioners. In all the States the figures had been dissected, and it was found that on an average each medical practitioner in metropolitan areas used from 13 to 14 gallons a week and in the country districts a little less. The General Secretary also added that he had discussed the matter with the Minister, who had assured him that the Government did not intend to do anything in the way of petrol rationing that would interfere with the essential services of the medical profession.

Commonwealth Survey of Medical Man Power.

Reference was made to the recent *questionnaire* that had been issued by the Federal Council to the members of the several Branches. It was pointed out that the expense of this *questionnaire* was to be borne by the Federal Council, and it was hoped that the State Branches would keep the returns up to date. Dr. H. C. Colville asked for instructions regarding the continuance of efforts to secure adequate replies. He pointed out that in Victoria approximately 60% of practitioners had replied. He said that the survey of hospitals was arduous, and he did not wish to proceed with the work if it was likely to be abortive. It was reported that in South Australia 390 forms had been sent out and 260 replies had been received. In New South Wales 2,457 forms had been sent out and 2,096 replies had been received. It was resolved, on the motion of Dr. George Bell, seconded by Dr. F. L. Davies:

> That a further appeal be made through the post to those members of the profession who have not returned *questionnaires*, and that in the letter of appeal the statement of the Defence Committee be included.

The Transference to Australia of Children of Medical Practitioners in Great Britain.

The General Secretary gave an outline of the steps that had been taken in regard to the proposed transference to Australia of the children of medical practitioners in the United Kingdom. He read some correspondence from Dr. G. C. Anderson, and stated that the number of children for whom medical practitioners in Australia were willing to make provision was 516. Later on, when it was suggested that children might have to be sent with their mothers, 27 further invitations had been received from Australian practitioners. The General Secretary pointed out that so far only two applications had been received from the United Kingdom.

Neuroses in War-Time.

Dr. H. C. Colville placed before the Federal Council a brochure issued by the Ministry of Pensions in Great Britain dealing with neuroses in war-time. This had been brought to his notice by Major S. O. Cowen, who had told him that the brochure was of great value, and who thought that it should be brought to the notice of members of the medical profession in Australia. It was resolved that, provided that the consent of the Ministry of Pensions could be obtained, the Federal Council should authorize the printing of the brochure and its issue through the Branches to members.

Matters Deferred.

Consideration of the following matters, which had been mentioned at previous meetings of the Federal Council, was deferred: a Federal emergency compensation fund; the terms and conditions of appointment to the public medical services; the principles of medical ethics; the organization of the profession.

A General Medical Service.

The Federal Council had before it a report on a general medical service for Australia that had been drawn up by a subcommittee consisting of Dr. George Bell, Dr. W. F. Simmons and the General Secretary. Members expressed their appreciation of this document and some discussion ensued as to whether a costing summary should be added to it. It was felt that the report required full consideration by the Branches and that such consideration should include the question of cost. It was resolved that a costing summary should be added and that a pamphlet for publication should be drafted for submission to the Federal Council at its next meeting. Dr. George Bell and Dr. W. F. Simmons were again appointed a subcommittee to deal with the matter and were given powers of cooption. The Federal Council expressed its appreciation of the enormous amount of work that had already been done.

The Representation of the Branches on the Federal Council during War-Time.

Dr. F. W. Carter raised the question as to whether the representation of the Branches on the Federal Council should be halved for the duration of the war on the ground of economy. It was resolved that this would not be a wise course.

Date and Place of Next Meeting.

It was resolved that the next meeting should be held in Melbourne on the date tentatively fixed as March 6, 1941.

Votes of Thanks.

A vote of thanks was accorded to the New South Wales Branch of the British Medical Association for having provided accommodation for the meeting and for its hospitality.

A vote of thanks was also accorded to Sir Henry Newland for having presided.

SCIENTIFIC.

A MEETING of the Victorian Branch of the British Medical Association was held on May 15, 1940, at the Royal Melbourne Hospital. The meeting took the form of a number of clinical demonstrations by members of the honorary staff of the hospital. Parts of this report appeared in the issues of August 10, August 24, September 21 and September 28, 1940.

Syphilis of the Lung.

DR. GEOFFREY A. PENINGTON showed a male patient, aged seventy-four years, suffering from syphilis of the lung. He had reported first in January, 1929, complaining of cough with sputum occurring in attacks over a period of two years, and was found to have signs suggestive of a mild degree of fibrosis at the apex of the right lung, where scattered râles and rhonchi could be heard. He was relieved by an expectorant mixture and did not report again until seven months later, when there was a recurrence of the disability. Again his attendance was occasional, and the only investigation carried out was examination of the sputum for tubercle bacilli; none were found.

The patient attended the Royal Melbourne Hospital again in January, 1932, on two occasions; but it was not until November of that year that there was any evidence of a serious lesion. On this visit he gave a history of cough, feverishness, pain in the chest and the expectoration of frothy, blood-stained sputum; and slight dulness to percussion and bronchial breathing were found to be present over the right apical lobe, most pronounced in the right anterior axillary line. A few moist sounds were heard over the same areas. Radiological examination revealed partial consolidation of the base of the upper lobe and the base of the lower lobe of the right lung; the apex of the right lung and the left lung were apparently normal. The patient's serum reacted strongly to the Wassermann test.

Despite the administration of iodides and expectorants, his condition continued to retrogress and he became very ill; the cough increased in severity, the sputum became frankly blood-stained, his appetite was poor, vomiting and loss of weight were present, and his mental condition greatly deteriorated. Another skiagram of the chest taken in January, 1933, disclosed a great increase in the area of consolidation, and at this stage he was considered to be suffering either from an unusual form of pulmonary tuberculosis or from carcinoma of the lung. He refused to submit to a bronchoscopic examination when admitted to the ward, and as repeated examinations of the sputum failed to reveal tubercle bacilli, he was given mercury and iodide in increasing amounts in the hope that a response would be obtained. His condition continued to deteriorate and it appeared that he would die; but when he insisted that he should return home for this purpose, he was persuaded to continue with the antispecific treatment during the process. A slow but progressive improvement in his general condition as well as in his lung condition followed this per-

sistence with treatment, and it became possible to institute vigorous medication with arsenicals and bismuth preparations given concurrently. The resultant lesion was a progressively increasing fibrosis of the affected area of the right lung with deviation of the trachea and mediastinum to the right side, and the fibrotic area appeared to be honeycombed with small cavities as shown in the X-ray films, while the physical signs were those of cavitation over the whole of the apical lobe and the adjacent portion of the lower lobe of the right lung. Bronchograms had been taken to ascertain whether there was communication between the apparent cavities and the bronchi, and although the apex could not be entered, small cavities resembling those of bronchiectasis were demonstrable in the remainder of the fibrotic area.

Dr. Penington remarked that the diagnosis of syphilis of the lung was not very common, and most of the suspected cases proved to be instances of pulmonary tuberculosis; but if the condition was more carefully sought for, it was probable that many more examples of the disease would be found. It was always essential to persist in the search for the tubercle bacillus, and in order to establish the diagnosis it was necessary to satisfy certain requirements. These requirements were: exclusion of tuberculosis, evidence of a syphilitic lesion elsewhere in the body, reaction to the Wassermann test, and response to treatment. Syphilis and tuberculosis might coexist, and the former lowered the resistance to the latter, so that there may be a less favourable form of tuberculosis; but the longer the interval between the two infections, the less harmfully did lues influence tuberculosis. Successful treatment confirmed the diagnosis, and iodides were to be preferred to other drugs during any febrile stage and late in the disease, while arsenicals were to be avoided until a period of treatment with iodide and mercury or bismuth had been given. Dr. Penington considered that the criteria had been fulfilled in the case presented, for the following reasons: tubercle bacilli had not been isolated even after inoculation of a guinea-pig with the sputum; there was radioscopic evidence of aortitis; there had been loss of testicular sensation; the serum reacted to the Wassermann test; and there had been an excellent ultimate result from antispecific treatment. The lesion had commenced as the gummatous form and resulted in chronic fibrosis with some degree of bronchiectasis. The inability to fill the bronchioles passing to the apex of the lung indicated the presence of bronchial stenosis, which was a common sequel to syphilis. The result was considered to be very satisfactory, as at the age of seventy-four years the patient was able to lead a moderately active life, although he was subject to mild attacks of bronchitis if he contracted a respiratory infection, such as the common cold. Radiographs illustrating the various stages of the condition were shown and the state of well-being of the patient was apparent.

Bronchiectasis.

Dr. Penington then presented two patients suffering from bronchiectasis, with the object of demonstrating the necessity for thorough investigation of the upper portion of the respiratory tract as well as for careful bronchographic examination of apparently unaffected portions of the bronchial tree. The possibility of amelioration of symptoms by conservative methods and the difficulty in deciding when to operate were stressed. Treatment consisted in attention to any infection of the nasal accessory sinuses, regularly repeated postural drainage, the use of autogenous vaccines, administration of suitable expectorants and so-called respiratory antiseptics and maintenance of the general state of nutrition. When the disease was mild or was strictly localized, and when drainage could readily be achieved by means of suitable postures, much benefit could be obtained by residence in a suitable climate (such as north of the Great Dividing Range), and it was essential that every care should be taken to avoid the respiratory infections so common in cities.

The first patient, a female, aged twenty-seven years, had attended the hospital on February 2, 1940, because of a cough, which had been persistently present for more than ten years. Thick grey sputum was expectorated, especially when she lay supine, and she also complained of being readily tired. She had been unable to do heavy work for five years. There had been no hæmoptysis; but she stated that she had had two attacks of pneumonia, the last attack occurring in July, 1939.

Physical examination revealed diminution of breath sounds and numerous râles and a few sibilant rhonchi at the base of the right lung. No tubercle bacilli could be found in the sputum. Radioscopic examination revealed a little fibrosis medially at the base of the right lung; but examination after the injection of lipiodol disclosed small localized bronchiectatic dilatations posteriorly at the extreme base of the right lung. Otherwise the middle and lower lobes of the right lung were filled normally with lipiodol. Dr. Penington had subsequently obtained a bronchogram of the lower lobe of the left lung to ensure that there was no involvement of that region, and he insisted that bronchographic examination was the only sure means of excluding a lesion in the retrocardiac portion of the lower lobe of the left lung. Slight diminution of translucency of the ethmoid sinuses was evident in skiagrams, and this was being investigated further.

Dr. Penington considered that lobectomy in this case was unjustifiable at present, because the lesion was strictly localized, drainage was obtainable with postural exercises, and it would be a heavy responsibility for anyone to submit to such a big operation a patient with so little disturbance of health. He proposed that she should persevere with conservative measures and be reexamined from time to time to ensure that the lesions were not progressive. If treatment did not give a satisfactory response, the question of lobectomy should be seriously reconsidered.

The second patient, a female, aged forty-seven years, had reported in January, 1940, with a history of "bronchitis" of four or five years' duration and persistent coughing of phlegm, worse at night. The cough had been noted for years prior to this, but no definite time of onset or cause for it could be ascertained. She had slight clubbing of the finger tips; and dulness, diminished breath sounds and post-tussive rhonchi were elicited at the base of the left lung.

The sputum was repeatedly examined for tubercle bacilli without success. No reaction was obtained with the Wassermann test. A radioscopic examination on January 15 revealed patchy consolidation in the lower two-thirds of the left lung. Although the apex and the right lung were clear, the possibility of basal tuberculosis had to be considered. No tubercle bacilli could be found in the sputum, and as a skiagram on February 12 indicated slight improvement, a bronchoscopic examination was made by Dr. G. C. Scantlebury in March. Dr. Scantlebury found that there was stenosis of the left main bronchus and that pus was evident beyond the stenotic region. Cultures (aerobic and anaerobic) made subsequently resulted in the isolation of green streptococci and Gram-negative unidentified bacilli, probably *Fusiformis*, from pus aspirated from the bronchus at the bronchoscopic examination. Lipiodol was instilled after aspiration and a large irregular abscess cavity was revealed posteriorly at the base of the left lung. Smaller cavities were evident in the lower lobe of the left lung above this, and some could be seen in the lower portion of the upper lobe. The lower lobe was partially collapsed. Bronchograms of the right lung revealed cylindrical bronchiectasis in the middle lobe and a suspicious area medially in the lower lobe. Lavage revealed pus in both maxillary antra.

Dr. Penington mentioned that the patient had not come under his observation until April, 1940, owing to his absence on military duty, and at his first examination he was puzzled to find flat dulness, absence of breath sounds and diminished vocal resonance at the base of the left lung. Inquiry elicited the information that the patient had not been attempting postural drainage; but when she assumed the knee-chest position and was instructed to cough, she expectorated about one and a half ounces of foul purulent sputum and the signs were completely altered, classical signs of cavitation being evident over the previously dull area. The patient illustrated the importance of thorough investigation of the whole of the bronchial tree, the necessity for attention to the concurrent sinus infection, the need for supervision and repeated regular and thorough postural drainage, and the hopelessness of undertaking operative treatment if the condition was not carefully controlled in the earlier stages. The prognosis was bad; but considerable subjective improvement was possible with conservative measures. Dr. Penington showed skiagrams and bronchograms of these patients.

Alcoholic Psychosis.

Dr. Penington next showed a male patient, aged thirty-seven years, who worked in a brewery. He had come to the hospital one month before the meeting because he had been losing weight steadily, had a poor appetite, and was unable efficiently to carry out his work as a clerk. His memory was stated to be poor, he had difficulty in concentrating, and he had become dirty in his habits, with some incontinence of urine. He stated that although he had been accustomed to take large quantities of alcohol some years previously he had not been drinking heavily in recent months.

Examination revealed evident loss of weight. The patient was quiet and cooperative, but rather slow in his responses to instructions. Tremor of the hands and tongue was present. The pupils were circular and moderately dilated, and the right pupil reacted only sluggishly to stimulation with light. Bilateral hippus was present. The tendon reflexes were equal and overactive; the responses to

plantar stimulation were flexor in type; the superficial abdominal reflexes could not be elicited. General examination revealed no other abnormality of significance.

The history and physical examination suggested the possibility of general paralysis of the insane, especially in view of the statements regarding alcohol; but his serum did not react to the Wassermann test, and independent inquiry revealed that the patient's statement regarding his intake of alcohol was a gross perversion of the truth. He was actually drinking very heavily of any and most cheap types of alcoholic drink, and was almost continually intoxicated (and wet with urine) despite his emphatic statements to the contrary. As an illustration of his complete unreliability it was mentioned that he stoutly denied having taken any alcohol when he attended the hospital with his breath heavily laden with the odour of it.

The parenteral and oral administration of vitamin *B* was commenced and Dr. Penington thought that there had been a slight improvement (the pupillary reaction had certainly become quite brisk) during the short period (five days) of its administration; but to ensure regular dosage and in order to attempt rehabilitation he was going as a voluntary boarder to a mental hospital.

Coronary Sclerosis.

Dr. J. B. Turner showed a female patient, aged forty-three years, whom he had first seen on October 5, 1938. At that time the patient was complaining of frequent attacks of anginal pain, even at rest, during the previous four months, and also of dyspnœa on exertion. Trinitrin afforded incomplete relief.

On examination the patient was found to have a systolic blood pressure of 160 and a diastolic pressure of 90 millimetres of mercury. The radial arteries were not palpable. The apex beat was three inches from the mid-line, and there was a systolic murmur at the apex. During the patient's first week in hospital the attacks were uncontrolled with rest in bed and the administration of nitrites. On October 13, 1938, the left stellate ganglion was injected with a local anæsthetic, and during the next two weeks the attacks were just as severe as before. On November 1, 1938, the stellate ganglion was injected with alcohol and the patient was discharged from hospital ten days later, free from pain.

She was readmitted to hospital on March 14, 1939. She said that she had been free from attacks for ten weeks after the injection of alcohol, when the pain had returned as severely as before. On examination she was found to have a systolic blood pressure of 145 and a diastolic pressure of 110 millimetres of mercury. On March 16 a further injection of alcohol was given, and as no further attacks of pain had occurred the patient was discharged from hospital one week later.

On August 15, 1939, the patient was again readmitted to hospital, having had a period of complete relief from pain for four and a half months after the last injection of alcohol. The systolic blood pressure was 150 and the diastolic pressure 110 millimetres of mercury; the radial arteries were not thickened.

An operation for resection of the stellate ganglion was performed under ether anæsthesia on September 13, 1939. The anterior approach and a low collar incision were used. The stellate ganglion and about three-quarters of an inch of the sympathetic trunk were resected. There were no further attacks of pain during convalescence. Since she had left hospital the patient had been well and free from pain and had been able to carry out her household duties.

Fracture of the Scaphoid Bone.

Dr. Turner's next patient was a male, aged thirty-nine years. Five months previously he had fallen onto his outstretched hand and had fractured his scaphoid bone. The hand had been immobilized ever since in a plaster splint; but no union had occurred and the fracture line had become more distinct. On May 1, 1940, the bone was exposed and a fine drill was driven into the two fragments in several places; X-ray photographs were taken with the drill *in situ*. The two fracture surfaces were also freshened. The hand, including the thumb, was then immobilized in a plaster splint, the hand being in the position of abduction.

Perforated Duodenal Ulcer Diagnosed Radiologically.

Dr. Turner's third patient was a male, aged fifty-eight years. He had had vague indigestion and loss of appetite for two weeks prior to his admission to hospital. Eighteen hours before his admission, while having a drink, he vomited and then felt a sudden severe pain in the upper part of the abdomen. He was given one-third of a grain of morphine and had some sleep that night. The next morning the pain was still present, but he felt it only when he moved. He was taken to hospital that afternoon.

On examination he was found to have a temperature of 100·6° F. and a pulse rate of 100 per minute; the systolic blood pressure was 140 and the diastolic pressure 90 millimetres of mercury. The abdomen moved slightly with respiration; slight rigidity of the abdominal wall was present, more pronounced in the upper part. There was some tenderness in the epigastrium. Liver dulness was not diminished, and no free fluid could be detected. No tenderness was found on rectal examination. A fluoroscopic examination was performed; the right dome of the diaphragm did not move so well as the left dome. With the patient in the erect position a bubble of gas could be seen between the upper surface of the liver and the diaphragm; this disappeared when the patient assumed the horizontal position. Some gas was discerned above the bubble in the stomach. One hour later all abnormal physical signs had disappeared, but the patient's temperature and pulse rate were as before; he did not appear ill.

At operation some free fluid was found. Omentum and fibrin obscured a small perforation in an ulcer situated on the antero-superior aspect of the duodenum, about one and a half inches from the pylorus. There was an area of induration surrounding the ulcer, about one inch in diameter.

Chronic Empyema.

Dr. Turner next showed a female patient, aged sixty-three years, who eighteen years previously had suffered from an amœbic abscess of the liver, and ten years previously had undergone cholecystectomy. The abscess on the liver had been drained; but a fistula had been left, which defied three attempts at closure; the last attempt was made twelve years prior to the meeting. The patient was admitted to hospital on April 26, 1939; she complained that for the previous four months the discharge from the fistula had become very foul-smelling and more profuse, although otherwise she was well.

Examination revealed that her temperature was 99·4° F. and her pulse rate 80 per minute; the respirations numbered 20 per minute. On the right side the percussion note and the breath sounds were slightly diminished; crepitations were heard over the right side of the chest posteriorly. In the lower anterior portion of the chest there was a fistula discharging pus, and the skin about it was somewhat excoriated. Barium was injected into the sinus and an X-ray examination was made; it revealed a large cavity in the middle third of the right side of the chest, measuring five and a half inches from front to back, two inches from above downwards, and two and a half inches from side to side. The cavity appeared to be within the lung at the localized area of dulness in the middle zone.

Operation was undertaken on May 31, 1939; the anæsthetic agent was ether, administered intratracheally. Portions of the fifth, sixth and seventh ribs over the sinus were removed. The pleura was found to be about half an inch in thickness; it was cut away and the cavity was laid open and packed with gauze. The packing was removed six days later, and then saline wash-outs were given every day. On July 28 an X-ray examination, after the injection of lipiodol into the sinus, revealed a broncho-pleural fistula. On August 16 a simple mastectomy was performed on the right side, as healing had been interfered with. After that the sinus gradually healed.

Osteomyelitis of the Fibula.

Dr. Turner's next patient was a girl, aged fifteen years, who had been admitted to hospital on March 5, 1940; she had had an abscess on the right leg for one week, following an infected blister between the second and third toes of her left foot. Her temperature was 102·4° F. and her pulse rate 120 per minute.

General examination revealed no abnormality. The right leg was held in flexion; it was warmer than the left leg, but no swelling or redness was present. There was an area of acute tenderness, about one inch in diameter, just below the joint line on the outer side; some tenderness was noted over the muscles of the calf. An almost healed lesion was found on the second toe. An X-ray examination revealed no abnormality. The limb was immobilized in a plaster splint and the patient was given "M & B 693".

On March 16 there was no change in the local condition. The patient's temperature had fallen. An X-ray examination revealed osteomyelitis of the fibula. On March 27 the abscess on the left thigh was opened; on April 4 there was an effusion into the right knee; on April 10 the abscess on the left thigh was almost healed.

(To be continued.)

Naval, Military and Air Force.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Number 195, of September 19, 1940.

CITIZEN NAVAL FORCES OF THE COMMONWEALTH.

Royal Australian Naval Volunteer Reserve.

Confirmation in Rank.—Surgeon Lieutenants (on probation) Bernard Balfour Garrett and Ian Stephen MacLeod Murphy are confirmed in the rank of Surgeon Lieutenant, with seniority in rank of 1st August, 1939.

AUSTRALIAN MILITARY FORCES.

NORTHERN COMMAND.

First Military District.

Australian Army Medical Corps.

Honorary Captain C. E. Thelander is appointed from the Reserve of Officers (A.A.M.C.), and to be Captain (provisionally), supernumerary to establishment pending absorption, 27th February, 1940.

EASTERN COMMAND.

Commands and Staffs.

Lieutenant-Colonel (Temporary Colonel) W. Vickers, D.S.O., V.D., Australian Army Medical Corps, from the appointment of Assistant Director of Medical Services, 2nd Division, is appointed Assistant Director of Medical Services, 1st Division, 1st May, 1940, *vice* Lieutenant-Colonel (Temporary Colonel) W. E. Kay, seconded to the A.I.F. Lieutenant-Colonel K. S. Parker, M.C., E.D., Australian Army Medical Corps, from the command of the 4th Cavalry Field Ambulance, is appointed Assistant Director of Medical Services, 2nd Division, and to be Colonel (temporarily), 1st May, 1940, *vice* Lieutenant-Colonel (Temporary Colonel) W. Vickers, D.S.O., V.D., who relinquishes the appointment on 30th April, 1940.

SOUTHERN COMMAND.

Fourth Military District.

Staff.

Lieutenant-Colonel A. R. Southwood, E.D., Australian Army Medical Corps, is appointed Deputy Director of Medical Services, 10th May, 1940, and to be Colonel (temporarily), 13th June, 1940, *vice* Lieutenant-Colonel (Temporary Colonel) F. H. Beare, E.D., seconded to the A.I.F.

Australian Army Medical Corps.

Lieutenant-Colonel A. R. Southwood, E.D., is transferred from the Unattached List, 10th May, 1940. The resignation of Honorary Lieutenant-Colonel I. B. Jose, M.C., of his commission is accepted.

Correspondence.

THE REORGANIZATION OF THE MEDICAL PROFESSION.

SIR: I quite agree with Dr. Illingworth that the law of compensation does make up for quite a number of the apparent defects of our present system, and I distrust attempts to regulate and standardize, because no man remains constant during the whole of his professional life to the abilities or standards of work possessed by him on commencing practice; neither does any practice remain of exactly the same type during a long period of time; both the practice and the practitioner vary with circumstances and in response to external stimuli which cannot be controlled.

I quite agree that the financial side does play too important a part in the placing of practitioners; but there are organizations which help to even this up; practitioners who can prove their *bona fides*, as regards both character and professional knowledge, are assisted financially to a very liberal extent by way of loan, for purchasing a practice, a share in a practice, and in other ways.

In my opinion the cure of these evils does not lie in any system of State medicine or national insurance, but in the following principles:

1. The insistence all through his medical education that the medical practitioner is the servant of the people and must always put service before gain, and that he must constantly examine himself as to whether he is faithfully attempting to develop his ability and natural talents both as a student and as a practitioner.

2. The need of team work between practitioners and the sweetly reasonable attitude of mind that no one practitioner can perform all the branches of professional work well.

3. The encouragement of short-term (one-year) assistantships by recent graduates to general practitioners of standing.

4. The provision of reasonable State subsidies to practitioners in sparsely populated areas, poorer districts, and to practitioners engaged in pathology and similar diagnostic services.

A good example of this State subsidy is the fee paid to obstetric consultants (who are not necessarily whole-time specialists, but may be general practitioners) by the State of New South Wales under the Maternal Welfare Scheme of the Director-General of Health.

Yours, etc.,

A. M. DAVIDSON.

Enmore,
New South Wales,
September 25, 1940.

Post-Graduate Work.

WEEK-END COURSE AT PARRAMATTA.

THE New South Wales Post-Graduate Committee in Medicine announces that, in conjunction with the Central Western Medical Association, it will hold a week-end course at Parramatta on Saturday, October 19, and Sunday, October 20, 1940. The programme is as follows:

Saturday, October 19, 1940.
(At Parramatta District Hospital.)

2 p.m.—Demonstration.
2.30 to 3.30 p.m.—"Differential Diagnosis of Precordial Pain": Dr. Kempson Maddox.
4 to 5 p.m.—"The Hormones": Dame Constance D'Arcy.

Sunday, October 20, 1940.
(At Parramatta District Hospital.)

10 to 11 a.m.—"Repair for Uterine Prolapse": Dame Constance D'Arcy.
11.30 a.m. to 12.30 p.m.—"Dietetics in General Practice": Dr. Kempson Maddox.
2 to 3 p.m.—"Vaginal Discharges": Dame Constance D'Arcy.
3 to 4 p.m.—"Changing Views in Diabetes Mellitus": Dr. Kempson Maddox.

The fee for the course will be one guinea. Those intending to be present at the course are requested to notify Dr. K. S. Macarthur Brown, "Brislington", 12, George Street, Parramatta, as soon as possible.

Australian Medical Board Proceedings.

NEW SOUTH WALES.

THE undermentioned has been registered, pursuant to the provisions of the *Medical Practitioners Act*, 1938-1939, of New South Wales, as a duly qualified medical practitioner:

Earle, Kevin Vigors, M.D., 1935 (Univ. London), c.o. Head Office, Bank of New South Wales, Sydney.

QUEENSLAND.

The following additional qualification has been registered:

Carseldine, Malcolm Wesley, Adelaide Street and New Sandgate Road, Clayfield, N.2. (M.B., B.S., 1929, Univ. Sydney), M.B., 1940 (Univ. Queensland).

Obituary.

FRANCES MARY STEVENSON.

WE regret to announce the death of Dr. Frances Mary Stevenson, which occurred on September 6, 1940, at Melbourne, Victoria.

ERIC JAMES ROBY HOLDER.

We regret to announce the death of Dr. Eric James Roby Holder, which occurred on September 23, 1940, at Alberton, South Australia.

Nominations and Elections.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Engisch, Herbert John Charles, M.B., B.S., 1939 (Univ. Sydney), Springwood Avenue, Springwood.

The undermentioned have been elected members of the South Australian Branch of the British Medical Association:

Lum, Lawrence Claude, M.B., B.S., 1939 (Univ. Adelaide), Woodville Road, Woodville.

Blofeld-Moody, Arthur John, M.R.C.S., L.R.C.P., L.M.S.S.A. (London), 391, Esplanade, Henley Beach.

Medical Appointments.

The following temporary appointments have been made at the Royal Adelaide Hospital, Adelaide: Honorary Assistant Surgeon, Dr. G. H. Solomon; Honorary Clinical Assistants to the Surgical Section, Dr. J. D. Mill, Dr. O. W. Frewin.

* * *

Dr. A. W. Taylor has been appointed a Certifying Medical Practitioner and Medical Referee at Mornington, Victoria, in accordance with the provisions of the *Workers' Compensation Acts* of Victoria.

* * *

Dr. W. Wood has been appointed a temporary Member of the Board of Official Visitors to the Mental Hospitals at Rydalmere and Parramatta, New South Wales.

* * *

Dr. K. W. Bollen has been appointed Deputy Quarantine Officer at Port Adelaide, South Australia, pursuant to the provisions of the *Quarantine Act*, 1908-1924.

* * *

Dr. A. T. H. Jolly has been appointed, pursuant to the provisions of *The Health Act*, 1911-1937, of Western Australia, Medical Officer of Health of the north-west part of the State.

* * *

Dr. I. A. McLean has been appointed Government Medical Officer at Forbes, New South Wales.

* * *

Dr. R. H. Formby has been appointed Temporary Honorary Clinical Assistant to the Surgical Section at the Royal Adelaide Hospital, Adelaide.

* * *

Dr. A. H. Joyce has been appointed a Member of the Opticians Registration Board of Victoria, in accordance with the provisions of the *Opticians Registration Act*, 1935, of Victoria.

* * *

Dr. A. N. Jacobs has been appointed Acting Medical Officer of Health to the Municipality of Narrogin, according to the provisions of *The Health Act*, 1911-1937, of Western Australia.

* * *

Dr. B. P. Cass has been appointed Government Medical Officer at Carcoar, New South Wales.

Books Received.

"Pye's Surgical Handicraft: A Manual of Surgical Manipulations, Minor Surgery and Other Matters Connected with the Work of House Surgeons and of Surgical Dressers", edited by H. Bailey, F.R.C.S.; Twelfth Edition, fully revised; 1940. Bristol: John Wright and Sons Limited. Demy 8vo, pp. 595, with illustrations. Price: 21s. net.

"Rose and Carless' Manual of Surgery for Students and Practitioners", by C. P. G. Wakeley, D.Sc., F.R.C.S., F.R.S.E., F.R.S.A., F.A.C.S., F.R.A.C.S., and J. B. Hunter, M.Chir., F.R.C.S.; Sixteenth Edition (in two volumes); 1940. London: Baillière, Tindall and Cox. Royal 8vo, pp. 1768, with 1,090 illustrations and 19 colour plates. Price: 30s. net.

Notice.

A MEETING of the Medical Board of the Royal Prince Alfred Hospital will be held in the A2 lecture theatre at the hospital on Friday, October 11, 1940, at 4.30 o'clock p.m. Demonstrations will be given by the departments of neurology and ophthalmology. All medical practitioners are invited to be present.

Diary for the Month.

OCT. 8.—New South Wales Branch, B.M.A.: Executive and Finance Committee Organization and Science Committee.
OCT. 8.—Tasmanian Branch, B.M.A.: Branch.
OCT. 11.—Queensland Branch, B.M.A.: Council.
OCT. 15.—New South Wales Branch, B.M.A.: Ethics Committee.
OCT. 16.—Western Australian Branch, B.M.A.: Branch.
OCT. 22.—New South Wales Branch, B.M.A.: Medical Politics Committee.
OCT. 23.—Victorian Branch, B.M.A.: Council.
OCT. 24.—New South Wales Branch, B.M.A.: Clinical.
OCT. 25.—Tasmanian Branch, B.M.A.: Council.
OCT. 25.—Queensland Branch, B.M.A.: Council.
OCT. 31.—New South Wales Branch, B.M.A.: Branch.
NOV. 1.—Queensland Branch, B.M.A.: Branch.
NOV. 5.—New South Wales Branch, B.M.A.: Organization and Science Committee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phœnix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Proserpine District Hospital. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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